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ABSTRACT

This second volume in a six-volume study of educational policies and practices in Canada covers the educational activities of the federal government. It discusses the evolution of federal support, the present federal participation, and policies for the seventies. (Author/IRT)

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

PARIS 1975

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REVIEW OF EDUCATIONAL POLICIES

in

CANADA

GOVERNMENT OF CANADA

Submission

of

THE SECRETARY OF STATE

1975

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CHAPTER I

EVOLUTION OF FEDERAL SUPPORT OF EDUCATION IN CANADA

A. Early Developments

1. At the time of Confederation, the federal government played no role in education in Canadian society. Under the terms of Confederation in 1867, the British North America Act placed responsibility for education with provincial governments. However, social and economic changes over the hundred years since confederation moved the federal government into an increasingly active role in education. Thus the federal government responded to educational demands of industrialization in the early 1900's, veterans returning from wars, and expanding post-secondary enrolments in the 1960's. These and other events, which placed heavy strains on education facilities, resulted in increased federal commitment. In financial terms, the commitment of the Government of Canada to education now exceeds an annual total of $2 billion dollars.

2. What were some of the significant events of the nation's educational history which induced the federal government to respond, and in which ways? Federal participation dates back to 1876 when, in an effort to train more Canadians to serve as army officers, the Royal Military College was established at Kingston. Another early step was a 150,000 acre land endowment to the University of Manitoba in 1885, as provision for capital expenditures and establishment of a permanent source of revenue for the university. Although these early steps were of considerable significance, federal involvement was still quite limited in the latter part of the 19th century. Indeed, at that time, education was considered to be a family responsibility and participation was largely determined by social status and religious belief. Public responsibility extended only to elementary schooling. Secondary schools, which were usually supported by religious organizations, were reserved to train future elites. In fact, an 1867 survey provided evidence that secondary education was the privilege of the few; in Ontario for example, of a total elementary and secondary enrolment of nearly 400,000, only 12,000 were secondary school students. It gradually became evident that Canada's education systems were inadequate to meet occupational changes. Increased government involvement was needed.

3. Pressure for educational reform came to bear on the federal government in the early 1900's. This was linked specifically to the flow of young people from farms to cities, which began to jeopardize agriculture; and to the shortage of skilled manpower by manufacturing industries. Following requests for action from business and labour, the federal government appointed the Royal Commission on Industrial Training and Vocational Education in 1910.

4. The work of the Commission resulted in important legislation: the Agricultural Aid Act of 1912, and the Agricultural Instruction Act of 1913. The former supplied grants to provinces to develop agricultural education and techniques; the latter specifically gave assistance for training, directly to the three existing veterinary colleges and indirectly (by channelling funds through the provinces) to agricultural

colleges. This was the genesis of channelling federal aid for education through provincial governments.

5. Although the Commission also recommended granting federal funds to provinces for developing technical education, no action was taken until after World War I. The war experience exposed the value of technical knowledge. In 1919, the federal government, in consultation with the provinces, introduced the Technical Education Act which bound the federal government to grant ten million dollars over a ten-year period for upgrading vocational, technical and industrial education in Canada. At the time, this amounted to a major federal commitment to the field of education. Funds were not to exceed, in any year, the amount which each provincial government spent on technical education.

6. There were problems with the Act: it was poorly administered and supervised, and monies were used occasionally to support projects beyond its scope. Furthermore, since benefits for each province were related to its willingness to spend in the designated sector, it was difficult for poorer provinces to take full advantage of available funds. As a result, when the Act lapsed ten years after its passage, Ontario was the only province which had taken full advantage of the allotted funds. Extensions had to be implemented to permit other provinces to claim their allotments.

7. In 1916, as a result of Canada's war involvement and a desire to improve research and development, the federal government formed the National Research Council (NRC). Initially, this was an effort to coordinate government research programs. During World War II, NRC played a vital role in coordinating and conducting scientific research. The Council, and its extensive program of grants and fellowships, is dealt with in Chapter II of this report.

8. When the federal government established the Dominion Bureau of Statistics in 1918, provision was made for a division to be concerned with education statistics. The Education Division published its first statistical report in 1921. The subsequent expansion of the services provided by this division is described in Chapter II.

9. In the late 1920's, anticipating the expiry of the Technical Education Act, the provinces approached the federal government to continue federal aid. Another Royal Commission to study technical and professional services was appointed in 1927. The report of the Beatty Commission resulted in the Vocational Education Act of 1931 which, due to the depression, was never proclaimed. This Act would have provided for the continuation of the programs initiated under the Technical Education Act of 1919. As it was, the Technical Education Act was given two five-year extensions which prolonged its existence until 1939.

10. The economic depression of the 1930's helped identify a major problem within the secondary school systems. On school leaving, many students found they had few occupational skills with which to enter the market place. In an attempt to alleviate this problem, the federal government introduced a new program for technical education in 1937 with the Unemployment and Agricultural Assistance Act. This Act, directed towards maintaining the morale and increasing the employability of young people,

was negotiated in agreement with the provinces, on a cost-sharing basis, through the establishment of various occupational training projects. Eligibility was limited to those between the ages of 18 and 30. Emphasizing vocational and technical skills, this Act provided funds of about $2.5 million during its two years, but corrected only to a limited degree the inadequacies of technical and vocational education.

11. In 1939, the Youth Training Act, introduced as the successor to the Unemployment and Agricultural Assistance Act, directed $4.5 million over the following three years to the provinces for the purpose of training young people between the ages of 16 and 30. Emphasis was below the post-secondary level. In addition, further assistance in the form of grants and loans was provided to post-secondary students under the Dominion-Provincial Student Aid Program. This became an important precedent for federal aid to post-secondary students.

12. In 1942, the existing federal-provincial agreements on vocational training were combined under the Vocational Training Coordination Act. The Act permitted the continuation of projects under the Youth Training Act, 1939, and provided for the establishment of a Vocational Training Advisory Council. The new Act also made provision for vocational training of discharged servicemen.

B. Recommendations of Royal Commissions

1. Royal Commission on Dominion-Provincial Relations

13. This Commission, known as the Rowell-Sirois Commission, was appointed in 1937 to make an assessment of the economic and financial basis of Confederation; the distribution of federal and provincial powers; and federal-provincial financial relations. While its mandate did not extend to education, the Commission felt that equality of educational opportunity did come within its domain. According to the Commission, the concept "education" had changed and expanded to include new dimensions since the time of the British North America Act. In view of this, the Commission recommended that "the federal government should have full power to provide employment aid for those recognized as employable . . . (which would) make the training of unemployed youth a matter of even greater federal concern than at present." The Commission assumed that the provinces would provide a system of courses to those Canadians requiring further training.

14. While the Commission stated that a free hand in education was vital to provincial autonomy, it identified certain problems arising in this context. Representations were made to the Commission concerning "the existence in several provinces of a sense of grievance which may well contribute to national disunity as well as to lack of harmony within the province concerned." Although the Commission lamented the disparity in educational opportunity throughout the country, it made no relevant recommendations, due to constitutional restraints. Solutions rested on financial proposals which would place the provinces in a position to meet their responsibilities for education, if they chose to.

15. Since members of the Commission were connected with the university community, they felt that it would be improper to make any formal recommendations in this area. However, in view of the importance of higher education to Canadian society, and the fact that academic freedom required financial security, the Commission offered the following advice: "It is conceivable that even the provinces might welcome a small Dominion grant to their universities made contingent on the maintenance over a period of some years of the provincial grants to the same institution and on the preservation of high academic standards." In addition, it suggested that grants could be given on a per capita basis, and scholarships and bursaries could be provided in order to attract more students from lower-income groups.

16. Another suggestion was that a council, analogous to the National Research Council, could be established to support research work in the social sciences in Canadian universities and elsewhere. The Commission suggested, furthermore, that it might be appropriate for the federal government to establish a national library.

2. Royal Commission on National Development in the Arts, Letters and Sciences

17. Growing Canadian cultural awareness and concern for a Canadian identity prompted the federal government to appoint in 1949 the Royal Commission on National Development in the Arts, Letters and Sciences. The Commission (also known as the Massey Commission) released its report in June 1951. In the field of higher learning, the Commission saw three major problems: scarcity of financial aid to the arts and humanities; the financial condition of universities; and orientation toward a small educated elite. As the Commission noted, the number of veterans enrolling as students was quickly diminishing and, as a result, the federal aid that came with them was eroding. The Commission believed that action was urgently required in this sector and that it was the duty of the federal government to assist in some way.

18. In view of the fact that the Canadian constitution did not forbid financial assistance to a citizen in order to help him to carry on studies in his chosen field, the Commission did not feel that it would be improper to recommend federal aid in the form of contributions to individuals. A further recommendation was the continuation of federal support for the program of the National Research Council. As for disciplines outside of the boundaries of natural science, the Commission recommended the establishment of what is today the Canada Council, with the stipulation that such a council receive an annual grant from the federal government for the establishment and maintenance of an adequate number of scholarships, studentships and bursaries for post-graduate students of Canadian universities in the humanities, the social sciences and law. Further recommendations included a broadened and improved system of aid to undergraduates, and funds for exchange scholarships.

19. Recognizing the increasingly vital role of universities in the Canadian society, the Commission felt that the Government of Canada had responsibilities towards these institutions. The Commission therefore recommended:

- That in addition to the help already being given for research and other purposes, the federal government make annual contributions to support the work of the universities on the basis of the population of each of the provinces of Canada;
- That these contributions be made after consultation with the government and the universities of each province, to be distributed to each university proportionately to the student enrolment;
- That these contributions be sufficient to ensure that the work of the universities of Canada may be carried on in accordance with the needs of the nation.

20. Other recommendations in this respect were that all members of the National Conference of Canadian Universities be eligible for the above-mentioned grants and that grants be made directly to the universities for each scholarship holder to compensate for the supplementary expenses incurred by the institution. Furthermore, as the Rowell-Sirois Commission had suggested, the Massey Commission recommended that a National Library be established as soon as possible.

3. Royal Commission on Bilingualism and Biculturalism

21. In 1963, in response to the increasing articulation of Canadian language and cultural problems, the federal government appointed the Royal Commission on Bilingualism and Biculturalism. The Commission (also known as the Laurendeau-Dunton Commission) received a broad mandate to inquire into and report upon the existing state of bilingualism and biculturalism in Canada and to recommend what steps should be taken to develop the Canadian Confederation on the basis of an equal partnership between the two founding races. The Commission was also to consider the contribution of other ethnic groups to Canadian society.

22. As a result of this mandate, the Commission devoted much of its time to an investigation of the field of education, which is closely linked with language and culture. The investigation was carried out in 1964 and 1965 through numerous public and private hearings and close study of submitted briefs. The Commission examined the education of the official language minorities in each province (e.g., French-speaking Albertans or English-speaking Quebecers), the teaching of French and English as a second language, and the image of the other cultural group which students may derive from their studies. As a result of their examination of bilingualism and biculturalism in Canadian education, the Commissioners made forty-six recommendations. Essentially, these recommendations would make it easier for Canadians to have their children educated in the official language of their choice and would aid students learning the other official language as a second language.

23. The first recommendation was that, in bilingual districts, public education be provided in each of the official minority languages at both the elementary and secondary levels. (In an earlier section of its report, the Commission had recommended the establishment of bilingual districts, i.e., census divisions where the official language minority is equal to or larger than 10 per cent of the population). This could be done by

providing separate classes in the minority language or, where numbers warranted, separate schools. This recommendation recognized the right of Canadian parents to have their children educated in the official language of their choice.

24. Two subsequent recommendations were that the mother tongue be taught as a subject in all grades and all programs of the official language minority schools; and that the majority language be taught in these schools as well. This would give students a mastery of their mother tongue as well as at least a working knowledge of the majority language.

25. Another recommendation urged the recognition of the rights of parents to send their children to either the majority-language school or the official minority-language school, where both existed in the community. The Commission felt that this could play a significant part in making more Canadians bilingual. For instance, children belonging to the majority language group could be educated in the other official language.

26. The Commission went on to make several recommendations concerning teacher training. The first was that the teachers destined for majority-language schools and official language minority schools be trained in separate institutions. An additional recommendation was that the training programs for teachers in French language minority schools be extended in order to develop a higher competence in French. The first recommendation would ensure that teachers are trained in the appropriate cultural and language milieu. The second would help to reduce some the anglicization of the French language in Canada.

27. At the level of higher education, the Commission recommended that French language education at the university level be provided for the Francophone minority whenever the potential enrolment made it feasible to do so, and that two universities, Ottawa and Laurentian, give priority to increasing the number of degree programs offered in French. These recommendations would allow French-Canadians to receive a good education in areas outside of the province of Quebec. In addition, the Commission recommended a federal grant to official minority-language students to enable them to study outside their province, when courses were not available in their own language within the province.

28. In another recommendation, the Commission affirmed that while education was provincial responsibility, it was reasonable to expect that the federal government should reimburse the provinces for the extra costs involved in providing facilities for students from both language groups. In view of this, it recommended that the federal government accept in principle the responsibility for the additional costs involved in providing education in the official minority language.

29. In reference to teaching of the second official language, the Commission recommended that second language study be obligatory for all Canadian students.

C. Major Support Measures in the Last Three Decades

30. In the past thirty years Canada's rapid economic and social growth has placed heavy demands on education, resulting in increased federal government support. The following sections describe some of the more significant measures of support for education since World War II.

1. The Veterans' Rehabilitation Act

31. The Veterans' Rehabilitation Act of 1945 was a federal response to the thousands of soldiers returning from World War II with little education and poor job prospects. By virtue of this Act, a veteran attending an educational or vocational training institution was entitled to receive a monthly living allowance, and have his tuition fees paid by the government. These provisions permitted over 50,000 veterans to attend universities, and another 85,000 to enrol in vocational and technical training courses.

32. While the Veterans' Rehabilitation Act assisted veterans, it also helped to ease the financial difficulties of Canadian universities, which had experienced a steep decline in enrolments and revenues during World War II. Under the provisions of the Act, universities became entitled to a direct subsidy of $150 per year for each veteran enrolled. In addition, they received further direct aid for construction of new buildings and facilities. However, by 1950, the inevitable decline in the number of veterans enrolled came to be an important factor leading to new financial difficulties for Canadian universities.

2. The Technical and Vocational Training Act

33. Toward the end of the 1950's there was growing concern about the need to expand the training facilities for Canada's manpower, which was short of skilled workers. Although the federal government had been active in this sector since before World War I, the Technical and Vocational Training Assistance Act (TVTA) of 1960 marked a major federal attempt to overcome Canada's skilled manpower shortage.

34. The TVTA authorized the investment of a vast amount of federal funds in capital development and a wide variety of programs. These programs ranged from technical and vocational high school training to the training of technical and vocational teachers. The largest expenditures were made under the 75 per cent cost-sharing Capital Assistance Program. This program, which permitted the provinces to undertake capital development for 25 per cent of the costs, resulted in a substantial expansion of technical and vocational education facilities in Canada. Between 1961 and 1968, a total of 1,128 capital projects were approved at a cost of about $917 million to the federal government. Total expenditures of all programs under TVTA were approximately $950 million.

35. While the programs inaugurated under TVTA did not completely eliminate Canada's skilled manpower shortage, the number of students that could be accommodated in technical and vocational training courses

was increased by four times. A total of 688 new schools were built and 440 projects involving additions and alterations to existing schools were completed.

3. Adult Occupational Training Act

36. In 1967, the federal government terminated the Technical and Vocational Training Act programs but introduced the Adult Occupational Training Act (AOTA). This signalled the end of cost-sharing with the provinces in the technical and vocational area, and the assumption by the federal government of responsibility for the upgrading and retraining of adult members of the labour force. The Act led to the establishment of the Canada Manpower Training Program, which is administered by the Department of Manpower and Immigration. The program, which is designed to contribute to economic and social development while reducing regional and individual disparities, provides employment-oriented training. The current status of this program is described in Chapter II of this report.

4. Grants to Universities

37. Not only were Canadian universities threatened in the late 40's and early 50's by decreasing veterans' enrolments, and corresponding decline in federal assistance, but also by rising costs. Tuition fees were increased, restricting accessibility to university education.

38. Obviously, a long-term solution had to be found to the problem of financial instability of Canadian universities. In 1949 the National Conference of Canadian Universities (NCCU) presented a statement to the then Prime Minister St-Laurent, in which they offered a justification of federal participation in university financing. A few weeks later, a NCCU brief presenting a similar case was submitted to the Massey Commission. In both instances, federal aid was justified by the NCCU in terms of national requirements for professional manpower. As a result, the Massey Commission, in its report, supported federal assistance to universities in cooperation with provincial governments. The federal government instituted, by Order-in-Council, a program of direct assistance to universities for 1951-52; a grant of 50¢ per capita of each provincial population was made available to universities in the respective provinces.

39. This assistance was welcomed by the universities. It was less well received by provincial governments, since the plan had not gone through the recommended inter-governmental process. The Quebec government, furthermore, viewed this as an incursion into an area of provincial jurisdiction and instructed its institutions to refuse the grants. This issue was finally settled by a federal-provincial agreement in 1959.

40. Over the years the grants under the program were gradually increased until they reached $5 per capita in their final year, 1966-67. During the program's 16 years existance, $400 million was distributed to universities across Canada. This program was replaced by the Federal-Provincial Fiscal Arrangements Act of 1967.

5. The Canada Student Loans Plan

41. Until the early 1960's, there was little direct government assistance available in Canada for post-secondary students. A small-scale federal plan, the Dominion-Provincial Student Aid Program, in existence since 1939, was limited in scope. Federal expenditure on the program totalled less than $45 million during its 25 years existence, affecting on an average less than 3,000 students a year.

42. It is important to note that in the early 1960's only about 5 per cent of the relevant population attended university, with enrolments comprising to a great degree students from families in the middle and upper income groups. It was evident that university accessibility was restricted. In an attempt to overcome this inequity, the federal government in 1964 introduced legislation creating an extensive national program of loans to students at the post-secondary level. This program is examined in Chapter II of this report.

6. Fiscal Transfers for Post-Secondary Education

43. In 1966, in the face of mounting evidence that university enrolments were likely to double in the next ten years, the federal government proposed to assist the provinces in financing the anticipated costs of post-secondary education by a special arrangement of fiscal transfers. This approach rested on an awareness of the extraordinary financial requirements for higher education in the years ahead, together with a recognition of provincial jurisdiction over education.

44. To effect these transfers, the federal government reduced its tax on incomes of individuals by 4 per cent of the basic tax, and its corporation income tax by 1 per cent of corporate profits, thus enabling the provinces to raise their own taxes by corresponding amounts. It was recognized, furthermore, that the foregoing tax transfers would meet a different proportion of the expenditure needs of each of the individual provinces for post-secondary education. This was so because of the differences in the levels of education expenditures across Canada, and because of differences in provincial tax yields even after application of a supplementary equalization formula. Thus a straight transfer to tax points would result in an unequal federal contribution toward the expenditures of the different provinces in this field. Therefore, the federal government made provision for additional payments to be known as the post-secondary education adjustment payments. This latter element of the fiscal transfers rested on a formula linked to the expenditures in each province in the field of post-secondary education, with the federal government guaranteeing that its total contribution for post-secondary education to a province would equal a certain proportion of these expenditures.

45. It was felt that the broad financial needs of the provinces in higher education could best be measured bo totalling the operating expenditures of the post-secondary institutions in each province, i.e., the expenditures of universities, technical institutes and other post-secondary institutions that arise from the training of students beyond junior matriculation. The post-secondary education adjustment payments were, therefore, set at a level necessary to augment the tax transfer to each province to a total

compensation equal to 50 per cent of the operating expenditures for post-secondary education in each province. It was recognized, furthermore, that this method might not suit some of the low-income provinces. Consequently, provision was made for an alternate formula representing the flat figure of $15 per capita, which was roughly equal to 50 per cent of post-secondary operating expenditures in all provinces combined.

46. The statutory provisions governing the new program of fiscal transfers for post-secondary education were written into Part II of the Federal-Provincial Fiscal Arrangements Act, 1967, which took effect on April 1st, 1967. During the first year of the program, the total federal contribution to the provinces under this legislation reached a total of $422 million, of which $240 million represented tax points and $182 million adjustment payments. This compares to the $99 million distributed to universities in Canada in 1966 under the system of the per capita grants which the new program of fiscal transfers replaced. The program of fiscal transfers is reviewed in Chapter II of this report.

7. The Canada Council

47. Established in 1957 in response to recommendations of the Massey Commission, the Canada Council promotes the development in Canada of the arts, social sciences, and humanities through a broad program of fellowships and grants. It also shares responsibility for Canada's cultural relations with other countries in cooperation with the Department of External Affairs. The Council is headed by a chairman and twenty members appointed by the Governor in Council. It is administered by a director and associate director.

48. As provided in the Canada Council Act, the Council enjoys a large measure of autonomy, setting its own policies and developing and carrying out its own programs in consultation with the community of artists and scholars. The Council reports to Parliament through the Secretary of State.

49. The Council's income is derived from three sources: an annual grant from the federal government (about $35 million for the 1972-73 fiscal year); a $50 million endowment fund established by Parliament when it created the Council (expected to yield $5 million annually); and private funds willed or donated to the Council and used in accordance with the wishes of the donors. During its first year of operation, the Council received a $50 million grant to be used to assist the provinces in the construction of university facilities for studies in the arts, social sciences, and humanities.

50. The greater part of the Council's budget (21.3 million in 1973-74) is used for assistance to the humanities and social sciences. Funds are contributed for doctoral fellowships, leave and research fellowships, learned meetings and conferences, and the publication of journals and manuscripts. Most of the balance ($18.2 million in 1973-74) is used to finance the arts in the form of bursaries and awards to individuals and grants to organizations.

51. The Canada Council also administers, on behalf of the Canadian government, part of a program of exchanges with France, Belgium, Switzerland, the Federal Republic of Germany, Italy, the Netherlands, and Latin American countries, under which it awarded several hundred fellowships and grants to citizens of those countries.

52. In 1973 the Council instituted a new program known as the Explorations Program. It is designed to assist projects in the arts, social sciences, and humanities which enhance the awareness of Canada's cultural diversity and identity. Recipients are not restricted to the academic community but may include professional artists, cultural animators and others. In the program's first year, about $1 million was contributed to 231 projects.

53. The Canada Council also provides the budget and staff for the Canadian Commission for UNESCO, which works in close cooperation both with governments and with the private sector. The main responsibilities of the Commission are to ensure non-political liaison with the Canadian professional community and to advise governments and the private sector on their participation in the UNESCO program.

54. Further reference to the activities of the Canada Council is made in Chapter II of this report.

CHAPTER II

PRESENT FEDERAL PARTICIPATION IN EDUCATION

A. Direct Participation or Purchase of Services

1. The Yukon Territory*

55. The Yukon Territory educational system is administered by the Yukon Department of Education. A superintendent and staff are located at Whitehorse, which is the capital city. The Department of Education is responsible to the Commissioner of the Territory. As with other territorial social services, it is the federal government which supplies the major share of the finances required for education in the Yukon.

56. The territorial educational system is modelled after that of British Columbia, with similar courses of studies. All children between the ages of 6 and 16 must attend school. There was an enrolment of 4,742 pupils in the Yukon's 23 schools in the 1973-74 school year. (The total population of the Yukon as of the 1971 census was 18,388). Enrolments have been relatively stable in the past five years and, due to a near zero population growth rate, are not expected to change significantly in the foreseeable future. Eight of the 23 schools are located in Whitehorse. The remainder are situated throughout the Territory. The number of pupils in attendance at Yukon schools ranges from 20 at an elementary school in Beaver Creek, to 586 at a combined elementary-secondary school in Whitehorse. Several of the Yukon schools provide all three levels (elementary, junior secondary, and senior secondary), while others offer combinations such as elementary and junior secondary. The scope of a Yukon school's academic functions is largely determined by the number of pupils enrolled and the remoteness of the community.

57. An unofficial cooperative community kindergarten program, founded in 1968, became an integral part of the regular school system in September 1974. Enrolment in the unofficial classes in 1973-74 was about 350.

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*Although provinces have responsibilities and powers allocated by the British North America Act, authority of territorial governments is allocated only by federal legislation. The Yukon and Northwest Territories Acts prescribe the structure of the executive, legislative and judicial branches of the territorial governments and the scope of their authority. All residual matters remain under federal control. The other piece of legislation under which the territorial governments operate is the Government Organization Act of 1966. This Act describes the responsibilities of the Department of Indian Affairs and Northern Development for the development of northern Canada. Thus the Minister of the department shares authority with the Governor-in-Council for directing the Commissioner in his duties. In effect, the Minister is the effective link between the territorial and federal governments.

58. Elementary-secondary enrolments amounted to 2,809 in 1960-61. By 1973-74, they had risen to 4,742. The latter figure includes 3,300 pupils enrolled in elementary grades (I - VII) and 1,442 in junior and senior secondary grades.

59. Except for a limited number of courses given in the Yukon Technical and Vocational Training Centre, the Yukon offers no post-secondary courses within its boundaries. In recognition of this, the Territorial Council passed legislation several years ago whereby residents of the Yukon or dependent sons and daughters of Yukon residents may receive financial assistance for their post-secondary training. A program of grants and bursaries allows eligible students to seek diplomas and degrees at outside institutions. Each student can obtain a $1,200 grant for the first year of studies; thereafter, a $600 grant, and a $400 bursary contingent upon a minimum of second-class standing. In addition to this, each student may also apply for a Canada Student Loan. During the academic year of 1973-74, 173 students received a grant and 129 received a bursary; 33 students received Canada Student Loans at a value of $30,700. These students attended a wide variety of educational institutions ranging from the Royal Roads Military College in British Columbia, to Acadia University in Nova Scotia.

60. The Yukon also provides vocational and industrial training and services for adults and young people over the age of 17. Courses are offered in the areas of vocational and industrial training, apprenticeship training, academic upgrading, the night school "general interest" variety (e.g., ceramics), and vocational rehabilitation for disabled persons.

61. The focal point of vocational training is the Yukon Vocational and Technical Training Centre. The Centre offered 25 different courses in 1973-74, ranging in length from four weeks to ten months. The variety of courses offered extends from a Certified Nursing Assistant course to clerical and heavy equipment operating courses. An increasing number of courses are being provided in the outlying communities. These include academic upgrading in an attempt to overcome the problem of illiteracy in many of the remote areas. Total enrolments in the vocational/industrial training and academic upgrading courses were 825 in 1973-74. Of this number, about 75 per cent completed the courses. There are also opportunities for apprentice training provided by the British Columbia Apprenticeship Board, the federal Department of Manpower and Immigration, and the Yukon Territorial Government. During the 1973-74 fiscal year, vocational and industrial training costs in the Yukon were $1,321,000. Almost $1.2 million of this amount was necessary for the continued operation of the Training Centre. Nearly $750,000 was recovered from the Department of Manpower and Immigration, which purchased over one-half of the seats available in courses in 1973-74.

62. The total of all educational operations and maintenance expenditures in the Yukon during 1973-74, based on preliminary estimates, was $7,978,000. The cost of vocational and post-secondary training was mentioned above. A further breakdown is as follows: kindergartens - $84,700; elementary and secondary schools - $6,197,900; and miscellaneous - $214,000. This includes direct costs (e.g., grants, salaries, supplies) and indirect

costs (e.g., Department of Education, student accommodation). For the elementary and secondary schools, the estimated average cost per student was about $1,300. Capital expenditures for 1973-74 were $1.6 million.

63. Once a serious problem in the Yukon educational system, the shortage of teachers has now eased. The Department of Education experienced no real difficulties in recruitment for the 1973-74 school year. The resignation rate was the lowest ever and amounted to only 21 per cent of the teaching staff. The annual recruitment program was limited to British Columbia and Alberta. Recruitment was only a little more difficult for 1974-75 due to increased teaching opportunities in British Columbia. Increased development of the north, attractive fringe benefits and an average salary of about $14,000 per year encourage more teachers to spend a longer period of time in the Yukon.

64. Teachers' qualifications have been steadily improving. Of the 255 elementary and secondary teachers employed in the Yukon, over 69 per cent have at least one degree. The Territory is now offering certification of teachers at the kindergarten level.

65. Another relatively recent innovation in the Yukon was the introduction and development of local curriculum materials and the native languages instructional program. Subjects such as the early history of Indians of the Yukon, and mining in the Yukon, were introduced at the elementary level. In some settlements, local natives are employed as teachers of the various native languages. It is anticipated that these programs will be expanded in the forthcoming years.

66. As part of the Federal-Provincial Programs for Bilingualism in Education, several French-language programs were introduced in the school system at the commencement of the 1974-75 academic year.

67. One problem in the Yukon which has not yet been remedied is that of retention rates in certain areas, particularly among native children. Factors such as cultural differences and geography have discouraged many native children from furthering their education. However, the expansion of facilities, and the attempts to relate education more closely to native culture, appear to have helped improve retention rates in recent years.

2. The Northwest Territories*

68. Educational expenditures in the Northwest Territories were about $20 million during the 1972-73 fiscal year. In the following year (1973-74), the education budget provided $7.8 million for capital expenditures and $22.2 million for operations and maintenance. As in the past, the major share of finances required for education was supplied by the federal government under a financial agreement with the Territorial Council. Of the 64 schools in the Territories, only two, both at Yellowknife, are municipally supported. The municipal schools receive their funds through municipal taxes and a per pupil grant from the territorial government.

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*Comments on the Northwest Territories as a political entity appear in the footnote on page 12.

All property owners in Yellowknife not falling within an organized school district are levied a school tax (15 mills for 1973-74). This tax income meets only a minor amount of the total educational costs.

69. The educational system of the Northwest Territories is administered by the Department of Education centred in Yellowknife. While the Department's administrative jurisdiction includes an enormous geographical area, there is a relatively small number of students. There were 11,871 students enrolled in the Territories' school system during 1973-74, constituting an increase of 220 over the previous year. (The population of the Northwest Territories as of the 1971 census was 34,807).

70. In 1960-61, school enrolments totalled 3,566; in 1969-70, 9,093. Between 1969 and 1973 enrolments increased at an average rate of 7.3 per cent. A large part of this increase was attributed to a higher retention rate of students in the school system, especially at the secondary school level. The 1973-74 enrolment of 11,871 included: kindergarten 1,312; elementary (Grades I - VI) 7,418; secondary (Grades VII - XII) 3,141. There were also 121 students enrolled in occupational classes.

71. While the Department operates schools in nearly all settlements, some of the smaller communities have facilities only for Grades I - VI. Complete elementary and secondary education is offered in five locations. In an effort to extend the length of time during which a student can remain in his home community, facilities have been expanded in many areas. Several schools which previously accommodated students up to Grade VI, now offer classes up to the Grade VIII or Grade X level. The course of studies in elementary and secondary schools of the Northwest Territories is modelled after that of Alberta, with compulsory attendance between the ages of 6 and 15. At present, an ungraded system is being introduced at the elementary level, allowing students to progress at their own rate.

72. As in the Yukon, student residences continue to be a supplementary service allowing for further education by supplying accommodation to students who do not have the appropriate school facilities in their home communities. The majority of students are enrolled at the high school level. Of the eight residences owned by the Territorial Government, two residences are administered by native parents, three by religious organizations, and three by the Government. There are, as well, several student hostels in the smaller communities which offer temporary accommodation for the younger children whose parents travel for short periods of time to hunt, fish and trap.

73. Every Inuit or Indian child in school in the north represents in some measure an achievement over difficulties of climate, distance and language on the part of those responsible for bringing education to the Territories. The Department of Education has developed innovative curriculum and teaching methods in recent years. One development has been the publication of a curriculum handbook which provides the philosophy, methodology and learning activities for young people between the ages of 12 and 15. The multicultural approaches to learning which are suggested in the handbook were introduced during the 1973-74 year.

74. In an increasing number of schools, the mother tongue of the child is being employed as the medium through which the individual initially participates in the formal learning situation and through which the young learner acquires fluency and competency in English as a second language. Among the Inuit schools, in particular, the utilization of the child's first language has gradually developed to the point where reading, writing, and oral skills in the native language are being taught.

75. Local residents are now being employed to teach northern arts and crafts in the schools as well as demonstrate skills in out-of-door educational experiences. Such programs can play a major role in maintaining the cultural heritage of northern peoples. To supplement these efforts, film strips, audio tapes, and reading materials in native languages are being produced for utilization by students.

76. The Department of Education is not able, at this time, to provide any facilities for post-secondary education in the Northwest Territories. However, the Universities of Alberta and Saskatchewan do offer some extension courses in the major settlements. Post-secondary and other specialized education outside the Territories is facilitated by a program of grants and bursaries. During 1972-73, a total of 156 students received financial assistance under the Northwest Territories Students Aid Program. Under this program, financial assistance is made available to all students whose parents have been residents of the Northwest Territories for at least two years, and who are accepted at a recognized university. This financial assistance is in the form of payment of tuition fees, text books, transportation costs, and costs of board and lodging. The assistance payments totalled almost $250,000 during 1972-73. An additional 12 students with established territorial residency, but not eligible for a grant, received bursaries of approximately $1,500 each to attend undergraduate or postgraduate training. The Department also administers the Canada Student Loans Plan on behalf of the federal government.

77. The Continuing and Special Education Division of the Department of Education provides for all the educational activities of adult people in the Territories. There are 49 activities which include apprenticeship programs, training in literacy, home management, and occupational skills related to industrial and traditional northern activities.

78. One of the main thrusts of the Division has been to establish adult education programs in settlements throughout the Territories. Other communities have expressed a need for apprenticeship or job-training facilities. Some of these classes are subsidized by Canada Manpower and take the form of full-time basic training classes.

79. The Adult Vocational Centre at Fort Smith now offers full-time courses in 13 major skills. As of October 1973, there was a total of 150 trainees taking part in a great variety of vocational programs, including such courses as telecommunications, welding, nursing assistants, and heavy duty mechanics. As of 1973, the Certified Nursing Assistants course started issuing its own certificates under a Territorial Ordinance. This course is designed to train residents of the Northwest Territories to assist in the care of patients in northern hospitals and nursing stations. A two-year Dental Therapy course is operated in conjunction with the Department of National Health and Welfare.

80. Apprenticeship continues to be the most effective program for the development of skilled tradesmen in the north. During 1973, there were about 160 industrial apprentices working in over 24 trades. Specialized programs are also offered to those with mental or physical handicaps.

81. In September 1973, the Department of Education introduced the Teacher Education Program designed to bring Indians and Inuits into the teaching profession. The student must be able to speak one of the Indian or Inuit languages. Following graduation, the student spends a two-year teaching internship in his or her home community before receiving Northwest Territories Teacher Certification. Over 100 native northerners were also employed in schools as classroom assistants.

82. In 1974 over 60 per cent of the Territorial teaching staff were in possession of one or more university degrees. Five years earlier only about one-half of the teachers held at least one degree.

83. In September 1974, Territorial schools employed 583 teachers. An additional 91 teachers were employed by the two municipally operated schools. On the average, teachers had just over two years of Territorial experience in 1969; in 1973, the average length of stay had risen to slightly less than four years. This had helped to ease the perennial recruitment problem in the Territories. The continued economic development of the north will probably further reduce the turnover rate in the larger settlements. It appears that a more permanent staff in the small communities will have to wait for the numbers of northern-born teachers to increase.

84. Among the problems that educators in the Northwest Territories are presently experiencing, probably the most important is the low retention rate of native students. This problem seems to stem in part from the fact that many of these students receive little stimulation and encouragement in the home environment. It has been suggested that perhaps the traditional concept of education has been oversold among the native population and its benefits do not seem to be sufficiently attractive. That is to say, it does not appear relevant to the traditional lifestyle. Attempts to alleviate this problem of cultural impact are being made in two directions. Recent educational policy in the north has emphasized the reinforcement of the indigenous cultures in the classroom. Secondly, adult natives are being encouraged to take a second look at education programs of adult education and basic literacy. However, these programs have not existed long enough for their impact to be evaluated. Nevertheless, it is obvious that the native peoples of Canada's north are becoming more and more integrated into Canadian society. If they are not provided with the tools to cope with a modern society, there will be little cause for optimism with regard to the longevity of their culture and well-being.

3. Native Peoples

85. The Department of Indian Affairs and Northern Development is responsible for the provision of educational facilities and services for registered Canadian Indians and Inuits. The objective of this Department is to advance the cultural aspirations of native peoples and to assist them in achieving, as individuals, equality of opportunity and self-fulfilment in relation to other Canadians.

86. For the fiscal year 1973-74, the Department devoted $136.6 million of its budget to pre-school, elementary, secondary, and post-secondary education. These funds supported about 72,000 students in federally-operated schools on Indian reserves, and those in other public or private schools. About 85 per cent of the students were residents of Québec, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia. Approximately 44 per cent attended federal schools, with the remainder enrolled in non-federal schools. In 1970, there were 68,566 native students; of these 40 per cent attended 276 schools on reserves, and 60 per cent were enrolled in provincial schools.

87. A factor of continuing concern in respect of education of native peoples is the retention rate. Traditionally, there has been a steady decline in enrolments between Grades VIII and XII. In 1973-74, for example, the enrolment figures were as follows:

Grade VIII	5,186
Grade IX	5,169
Grade X	3,071
Grade XI	1,791
Grade XII	1,185

88. At the present time, increased emphasis is being placed on the participation of Indian communities in the operation of schools. Native languages are now being taught in many schools, with the instructors being chosen and employed by the local band councils. Indian artists, dancers, and musicians demonstrate skills and talents to students. In addition, more Indians are being hired as teacher-aides and social consellors. These steps are encouraging native students to participate in the education system for longer periods of time.

89. In 1973-74, the Department of Indian Affairs and Northern Development funded 17 projects or studies in education at a cost of $459,315. These projects either employed native peoples or were directed by native groups.

90. The Department also operates an extensive post-secondary education program, with a wide range of options open to those wishing to receive a general education and marketable skills. An adult education program provides basic literacy and other courses, including Indian languages and crafts, with an enrolment of 31,000 in 1973-74.

91. Further, a vocational training program currently supports almost 10,000 native students attending universities, teachers' colleges, and vocational or pre-vocational institutions. In addition, the Department provides wages to facilitate on-the-job training and apprenticeship courses.

92. A cultural/education centre program provides native peoples with opportunities to define and express their cultural priorities. In 1973-74, $4,155,242 was advanced to 20 cultural/education centres by the Department to assist them in their operations.

4. Military Education

93. The Department of National Defence sponsors programs which provide subsidized university training to Canadian Forces personnel. The largest of these programs is the Regular Officer Training Plan (ROTP). Under this program, personnel are subsidized to attend Canadian civilian universities or the Canadian Military Colleges.

94. The Department operates three military colleges located across the country: Royal Roads Military College at Esquimalt, British Columbia; Royal Military College at Kingston, Ontario; and Collège Militaire Royal at Saint-Jean, Quebec. The aim of these colleges if to provide undergraduate university education and military training to young Canadians aspiring to a career in the Canadian Forces. Of the undergraduates subsidized under the Regular Officer Training Plan (ROTP), about 70 per cent attend the military colleges.

95. The Royal Military College (RMC) at Kingston, Ontario, was established in 1874 by an Act of Parliament for the purpose of imparting education in all branches of military tactics, fortification, engineering and general scientific knowledge in subjects connected with and essential to a thorough knowledge of the military profession, and for qualifying officers for command and staff appointments. From an initial group of 18 cadets in 1876, enrolment at RMC has now grown to over 680.

96. Le Collège Militaire Royal (CMR) de Saint-Jean, which was founded in 1952, initiated a four-year course of studies in 1969. The operation of the college is conducted bilingually, with French and English being alternated every two weeks. Students of the first graduating class were awarded degrees through an affiliation agreement with the University of Sherbrooke in 1971. Courses of study offered at CMR are arts, science and administration. The 1974-75 enrolment was approximately 480.

97. Royal Roads Military College (RRMC) at Esquimalt, British Columbia, was established as a two-year military college after World War II. At RRMC students follow a two-year program and upon completion can fulfill their degree requirements at either RMC or CMR. This is the smallest of the three military colleges with a 1974-75 enrolment of about 256.

98. Under the Regular Officer Training Plan selected applicants are educated to the baccalaureate level, for a maximum of five academic years at public expense at either one of the above Canadian Military Colleges, a Canadian university, or a selected community college or Québec CEGEP. Successful candidates are enrolled as members of the Canadian Forces with the rank of Officer Cadet and receive pay for that rank. The cost of tuition, compulsory fees, books and instruments is borne by the Department of National Defence. On graduation, the Officer Cadet is commissioned and promoted to the rank of Lieutenant with the obligation of serving in the armed forces for four or five years. Annually, approximately 600 applicants are enrolled in ROTP, with a graduating class of about 300 each spring.

99. The three Canadian Military Colleges share several distinctions from other Canadian universities. The major difference is that the Colleges are user-oriented. That is, they are operated by the military and for

the military. One effect of this is a high degree of responsiveness to military needs. If, for example, there is an urgent need for a large number of officers with an expert knowledge of the sea environment, studies in oceanography can be introduced almost immediately. In terms of the individual, there is almost equal emphasis on academic, physical, and social development. Academic development is balanced by requiring an engineering or science student to take several arts courses as well and vice versa.

100. In addition to the ROTP, the Department of National Defence sponsors several other university subsidization schemes for Canadian Forces personnel. These include the University Training Plan, which allows serving personnel to return to school and obtain a degree, as well as the Dental and Medical Officer Training Plans. There are also post-graduate training programs for selected officers to meet specified needs of the Forces.

101. A promising innovation was introduced in September 1974 in conjunction with the University of Manitoba. Recognizing the problem of the mobility of Forces personnel, the University will, once a Force member or dependent has registered for and successfully completed no less than two full courses through any of its faculties, provide on-going counselling as to choice of courses at the University or other centres. After completion of the normal number of courses (e.g., fifteen for a baccalaureat), the University will confer one of its degrees upon the student. This program, in effect, alleviates the difficulty of meeting the residency requirement for university graduation.

5. Education of Dependent Children of Canadian Forces Personnel

102. Since the early 1920's, the Department of National Defence (DND) has assumed responsibility for the education of children of Canadian Forces (CF) personnel living at defence establishments.

103. There are four methods of funding these education costs. Under the law of municipal grants, a municipality may apply to the Minister of Finance for payment of a grant in lieu of school taxes to cover the costs of providing school facilities for children of CF personnel residing at a CF base. Under a second method, when services are not supplied by the base's schools, DND may pay the municipal school board the school costs of the dependent children. A third alternative is for DND to share with the local school board the construction and operating costs of a new school or additions to existing facilities. Under a fourth method, the Department may build a school, assuming capital and operating costs. In the latter case, schools follow the educational system of the province in which they are located, but administrative responsibility lies with a school board composed of military personnel.

104. Wherever possible, DND offers equal education opportunities to anglophone and francophone children. Arrangements are made for attendance at public or private schools where the language of instruction is consistent with the policy intent of the Official Languages Act and the language of the home; or at DND schools with facilities expanded to meet this need. When facilities are not available locally, an allowance may be paid to cover the cost of obtaining the necessary schooling elsewhere.

105. In the case of overseas residence, the Department of National Defence usually establishes its own schools on or near its bases. These schools, which operate in English and French, follow the programs of either the Ontario or Québec provincial education systems.

106. When such education does not exist on the base or locally, an education allowance is provided to permit school attendance elsewhere overseas or in Canada.

107. In 1974, DND operated 64 schools in Canada and 11 overseas, with a total enrolment of about 26,000 children of CF personnel. In addition, approximately 11,000 pupils (e.g., those living on bases) were being educated in municipal schools. The total cost of these programs to DND for the fiscal year 1972-73 was $32,000,000.

6. Adult Education Programs within the Federal Prison Service

108. The Department of the Solicitor General, through the Canadian Penitentiary Service, is responsible for the education of the more than 7,000 inmates of federal prisons. This function is administered through programs of occupational and social development. The ultimate goal of these programs is to develop mature attitudes and a sense of responsibility in the inmate, and equip him with a saleable skill while offering encouragement to plan realistically for his future re-entry into society. In liaison with Canada Manpower, training is given in Creative Job Search Techniques to provide awareness of the labour market and training in selling one's skills.

109. In recent years, the Department has followed a policy of increased reliance on local education teaching facilities, with a corresponding reduction in penitentiary teaching staff. This enables inmates to participate in academic programs of the same calibre as those available to the broader society. At several penal institutions throughout Canada, inmates are offered opportunities to reach elementary, secondary and post-secondary levels, often by means of contractual arrangements with local school boards, community colleges and universities. In 1972-73, a total of 1,200 inmates were enrolled in these academic programs offered by the Canadian Penitentiary Service. In 22 other cases, day parole was used to allow inmates to attend classes at nearby educational centres, usually at the post-secondary level. In 1972-73, these programs cost a total of $400,000; it is expected that the cost will total about $1 million in 1974-75.

110. Since technical training and employment in an institution provide the inmate with saleable skills that allow him to obtain and hold a permanent job, occupational training is heavily emphasized. Full-time trade school courses and on-the-job training programs in industries and services are available in all regions. These programs offer training opportunities to approximately 75 per cent of the inmate population in more than 50 different occupations. During 1972-73, about 3,000 inmates participated in full-time trade school courses, 1,500 received on-the-job training in industry, and approximately 3,000 were employed in on-the-job training in services. To assist in planning and development, the Department of Manpower and Immigration regularly evaluates the occupational programs.

In addition, the Department of Manpower and Immigration assigns full-time employment counsellors to selected institutions to provide an integrated training, counselling, employment and advisory service to inmates.

111. The social development of inmates is enhanced by life skills courses now being introduced on a limited basis. This program, concerned with problem-solving, behaviour, and management of personal affairs, is designed to provide inmates with the necessary skills to cope responsibly and effectively in society.

112. The problems that arise in the various training programs include that of motivating inmates who have usually found school unpalatable in their earlier years. Another problem encountered is the creation and maintenance of an environment conducive to learning behind prison walls (the problem of freeing the mind when you chain the body). In some cases, furthermore, the geographic location of the institution may impede access to educational facilities.

113. Future policy of the Canadian Penitentiary Service is to extend its contractual arrangements with outside educational agencies, while reducing the size of its own program and staff. With strong emphasis on community resources over the last three years, inmate motivation has increased and participation in education has doubled. Drop-out rates have declined from over 35 per cent to less than 10 per cent, with inmates accelerating their education. In addition, these programs proved to be less expensive than those within the prisons. As increasing numbers of inmates participate and advance through the education program, the Canadian Penitentiary Service anticipates the need for increased post-secondary education opportunities.

7. Occupational Training of Adults

114. Following the model of "an active manpower policy" proposed in 1964 by OECD, the Canadian government created the Department of Manpower and Immigration in 1966. Most of the programs and services recommended by OECD were then introduced.

115. Under the Canada Manpower Training Program, administered by the Department of Manpower and Immigration, two forms of employment-oriented training are available to adults: institutional training conducted under the auspices of a school or college; and industrial training conducted by a firm for its workers. Both forms of training are offered in collaboration with provincial authorities.

116. The institutional component of the program covers training in specific occupational skills (including the classroom portion of apprentice training); educational upgrading as a prerequisite to employment or entry to skill courses; fluency training in Canada's two official languages; and various special types of training (e.g., language training for immigrants) designed to assist individuals facing serious barriers to employment. Under the program, the maximum permissible duration of any training course is 52 weeks, but policies adopted in 1973 facilitate the

return to further training of those for whom a recurrent pattern is appropriate. The program is open to adults (i.e., persons at least one year beyond school leaving age who have been out of the formal education system for at least one year). The decision to provide training is made by a Manpower officer on the basis of potential benefits in terms of the employability and earning capacity of the individual concerned.

117. The training offered under the Canada Manpower Training Program is generally conducted in provincial vocational schools, community colleges and similar institutions (although where a particular type of training is not available from these sources, privately-conducted training may be purchased). The allocation of funds by type of training, geographic area and institution is planned and monitored in each province by a joint federal-provincial Manpower Needs Committee, which gathers available data on occupational trends, skill needs, and industrial development plans. The Committees also recommend funding levels for future years. The provinces are responsible for the content and methodology of training, and in many cases their agencies participate in trainee selection.

118. While in training, a trainee receives a weekly allowance which in 1974-75 ranged from $43 to $130, according to the individual's status, number of dependents and whether living away from home. The schedule of allowance rates is adjusted each year in accordance with average wage rates in manufacturing industries.

119. Language training is offered to immigrants requiring French or English in order to be employed. The immigrant may take up to 24 weeks of language training. Costs are covered for: teachers' salaries, transportation, facilities, and some wage reimbursement. During 1973-74 language training was provided to 9,854 immigrants at a cost of $17.5 million.

120. In 1973-74, some 277,000 persons received institutional training at a cost of $204 million, while allowance expenditures totalled $148 million.

121. The industrial training component is distinguished from the institutional in that it is employer-centred and is provided for trainees who are employees of the training firm at least during the training period. Financial assistance from federal funds is provided to the training employer in the form of reimbursement of most direct training costs and trainee wage costs. No monies are paid directly to trainees. Pedagogical expertise is provided by provincial agencies, which assist the employer in developing job analyses and training plans and monitor the training to ensure that it is properly carried out.

122. Examples of such industrial training include: on-the-job training to bring classroom trained workers up to productivity standards; training to overcome shortages of particular skills where it is judged that the employer's training will be quicker or more efficient than institutional training; and upgrading skills to cope with technical or production changes. Special efforts are made to support employers who are initiating, or need to improve their own training in order to: support the industrial development strategies established for various regions of the country;

reduce unemployment in areas where it is most severe; and to equalize employment opportunities for persons who are experiencing more than normal difficulty in securing continuing employment.

123. Fifty-two weeks is the longest period of training authorized. Currently $130 per trainee per week is the maximum wage reimbursement. During 1973-74, some 43,000 persons received industrial training at a total cost to Canada of just under $19 million, while in 1974-75 plans call for an expenditure of over $37 million on this program.

124. The two components of the Canada Manpower Training Program are complementary, and currently account for an expenditure of over $400 million annually to provide skills needed by Canadian society, and to offer individual workers the opportunity to prepare for steadier, better-paid and more satisfying work. Cost/benefit analyses indicate that for each dollar spent on manpower programs, the national economy gains $2 - $3 in return.*

8. Educational Technology

125. During the late 60's and early 70's, it was apparent that applications of modern technology to education in Canada were not developing in the most economically efficient manner. In early 1972, the Minister of Communications and the Secretary of State reported to the federal Cabinet that critical and growing disparities had arisen among the provinces in their financial ability to use educational technology. Some provinces had been able to create and expand educational broadcasting systems. However, due to financial constraints, other provinces had to economize with regard to educational expenditures, and thus had not been able to afford the heavy outlays involved with technological services. Since widespread use of modern transmission systems involves high initial investment costs before benefits materialize, it is important that money not be wasted through error in selection of appropriate systems. With these views in mind, a research program was approved by Cabinet in the fall of 1972 on the condition that the Council of Ministers of Education were in agreement. The necessary endorsement in principle of the project was given by the Council in February 1973, and in January 1974 it adopted the procedural position that each provincial educational authority was free to become involved in the program on a bilateral basis with the federal government.

126. To administer the program, an Educational Technology Branch was created within the Department of Communications with a budget of $2.1 million for the two and a half year program. The program now employs a number of high level professionals with expertise in systems engineering and communications/computer technology. Resources are also supplied by the National Film Board, the National Research Council and the Communications Research Centre of the Department of Communications.

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*W.R. Dymond, "Manpower Policy: The Canadian Experience." Paper delivered to Industrial Relations Research Association, Albany. N.Y., May 9, 1970 (Ottawa: Department of Manpower and Immigration, 1970). Mimeographed.

127. The program is dependent upon close federal-provincial cooperation. Agreements have already been signed between the federal government and the governments of Nova Scotia and Alberta to conduct surveys of provincial requirements. For example, the survey in Nova Scotia will study how to improve the province's educational process through the cost-effective application of educational technology; the Educational Technology Branch is supplying $206,000 or about 80 per cent of the funds, with the remainder provided by the province.

128. The Alberta program calls for testing and evaluating a range of electronic playback equipment and making recommendations relative to application, with the federal government providing $110,000, or about 65 per cent of the cost. Negotiations with other provinces are presently underway.

129. With participation from other federal agencies, working committees have been established to assist the Educational Technology Branch. Each committee specializes in a different area (i.e., audio-visual systems, computer/communications systems, and other communications systems). Committee responsibilities are to ensure that systems develop in accordance with educational requirements, and to recommend uniform standards.

130. The work of the Educational Technology Branch represents only one facet of the work underway in Canada in this field. In 1967, the National Research Council (NRC) began a preliminary study of the application of computers as aids to learning. This initial work led to the establishment of a central research facility which is used by the Council and a number of educational research organizations in a cooperative program of research in computer-aided learning. This central facility includes a medium-scale time-sharing computer which is accessible to the participating organizations by means of remote terminals. The computer serves as the nucleus of the cooperative effort, in which educators in more than a dozen centres write and evaluate courses through remote terminals, and share on the network the materials produced with the other contributors. The NRC provides the systems design and programming as well as the specialized terminal designs required for easy communications between student and computer.

131. Hardware facilities developed under the program include a multi-media student terminal which permits flexible presentation of audio and visual information in coded character or graphic form. A transparent, touch-sensitive graphic input tablet has been developed which will transmit data to the computer each time the surface of the tablet is touched.

132. Under the sponsorship of the Council's Associate Committee on Instructional Technology, work is underway on the development of a common programming language for computer-aided learning applications. This will permit the wide-spread use of computer based course materials, which is necessary to make them economical. Direct cost to the Council is in excess of $600,000, which does not include personnel contributions of universities and other participating organizations.

133. The National Film Board (NFB) is another federal agency active in educational technology. While the Board does not design a specific program for education, it does produce materials for young audiences used frequently in Canadian schools. The Board's Technical Research Division is currently conducting several studies related to educational needs. These studies include a simple monochrome stereo television recording and viewing system for instructional purposes, and a low cost system for supplying bilingual sound tracks on a single print.

134. The Board also participates in a program with NRC to probe the potential applications of computer-generated animation. If successful, it could be of benefit to NFB projects like animation training programs used by school children. Furthermore, the NFB also assists the Department of Communications with their evaluation of audio-visual equipment for provincial educational authorities.

135. Sixty per cent of all usage of NFB films is in schools. Its materials (e.g., films, filmstrips) are being used by schools in Canada at the present rate of about 400,000 bookings per year, at a cost to NFB of approximately $1.6 million.

B. Support Programs: Support to Governments

1. Fiscal Transfers for Post-Secondary Education

136. The present program of fiscal transfers in support of post-secondary education was conceived in 1966 in order to strengthen the financial ability of the provinces to meet the rapidly growing demand for post-secondary education. The statutory provisions governing these transfers took effect on April 1, 1967. Under these provisions, the transfer of financial resources to the provinces for post-secondary education has two components:

(i) a federal revenue reduction relating to post-secondary education, with associated equalization and guarantee payments; and

(ii) post-secondary education adjustment payments.

137. The first component is commonly referred to as "tax points." Although tax points do not appear as a cash outlay in the federal budget, their value to the provinces is an integral part of the federal contribution for post-secondary education under the current program. The administration of the federal revenue reduction for post-secondary education and the associated equalization and guarantee payments is in the hands of the Department of Finance.

138. The second component - post-secondary education adjustment payments - is designed to bring the total transfer to each province to the level of its entitlement under Part VI of the Federal-Provincial Fiscal Arrangements Act, 1972, which replaced the Federal Provincial Fiscal Arrangements Act, 1967.

TABLE 1

FISCAL TRANSFERS FOR POST-SECONDARY EDUCATION, BY PROVINCE, 1967-68 TO 1973-74

(millions of dollars)

	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74
Newfoundland							
Operating expenditures	7.77	10.97	13.80	18.07	22.57	28.10	32.15
Fiscal transfer:							
Total	7.49	9.39	11.59	14.06	16.65	17.67	19.07
Tax points	5.40	6.45	7.52	8.33	9.68	11.65	13.66
Adj. payments	2.09	2.94	4.07	5.73	6.77	6.02	5.41
Per capita value (dollars)	15	19	23	27	32	33	35
Prince Edward Island							
Operating expenditures	2.12	2.77	3.57	4.74	5.18	6.50	6.23
Fiscal transfer:							
Total	1.44	2.06	2.56	3.08	3.60	3.87	4.18
Tax points	.73	1.40	1.65	1.79	2.07	2.45	2.91
Adj. payments	.91	.66	.91	1.29	1.53	1.42	1.27
Per capita value (dollars)	15	19	23	28	32	34	36
Nova Scotia							
Operating expenditures	31.76	39.77	49.78	59.02	68.01	67.60	76.58
Fiscal transfer:							
Total	15.88	19.88	24.89	29.51	34.00	33.80	38.25
Tax points	8.27	9.82	11.41	12.61	14.62	17.28	20.27
Adj. payments	7.61	10.06	13.48	16.90	19.38	16.52	17.98
Per capita value (dollars)	21	26	32	38	43	43	48
New Brunswick							
Operating expenditures	15.82	20.46	25.24	29.80	34.09	40.00	39.40
Fiscal transfer:							
Total	9.30	11.66	14.39	17.46	20.43	21.96	23.67
Tax points	6.73	7.97	9.23	10.17	11.76	14.28	16.44
Adj. payments	2.57	3.69	5.16	7.29	8.67	7.66	7.23
Per capita value (dollars)	15	19	23	28	32	34	36
Quebec							
Operating expenditures	254.76	301.06	369.65	449.27	547.19	610.60	653.50
Fiscal transfer:							
Total	127.38	150.53	184.83	224.63	273.59	305.30	326.75
Tax points	62.66	73.14	87.30	96.37	111.71	130.00	152.69
Adj. payments	64.72	75.39	97.63	128.26	161.88	175.30	174.06
Per capita value (dollars)	22	25	31	37	45	50	54
Ontario							
Operating expenditures	297.31	395.25	496.03	599.00	693.28	743.00	802.88
Fiscal transfer:							
Total	148.65	197.62	248.0[illegible]	299.50	346.64	371.50	401.44
Tax points	97.34	119.05	140.09	156.15	181.80	210.11	248.85
Adj. payments	51.31	78.57	107.92	143.35	164.84	161.39	152.59
Per capita value (dollars)	21	27	34	40	45	47	51
Manitoba							
Operating expenditures	36.29	46.40	53.94	67.18	73.40	80.30	84.72
Fiscal transfer:							
Total	18.14	23.20	26.97	33.59	36.70	40.15	42.36
Tax points	10.45	13.46	14.43	15.88	18.34	20.71	25.08
Adj. payments	7.69	10.74	13.54	17.71	18.36	19.44	17.28
Per capita value (dollars)	19	24	29	34	37	40	42
Saskatchewan							
Operating expenditures	38.80	45.68	53.63	60.54	65.63	67.30	77.98
Fiscal transfer:							
Total	19.40	22.84	26.71	30.28	32.81	33.65	38.99
Tax points	7.37	12.07	13.82	15.03	17.19	20.82	22.89
Adj. payments	12.03	10.77	12.89	15.25	15.62	12.83	16.10
Per capita value (dollars)	20	24	28	32	35	37	43
Alberta							
Operating expenditures	79.92	97.71	123.05	157.94	177.42	175.70	187.89
Fiscal transfer:							
Total	39.76	48.85	61.52	78.97	88.71	87.85	93.94
Tax points	15.85	19.05	22.66	25.41	30.12	36.05	41.95
Adj. payments	23.91	29.80	38.86	53.56	58.59	51.80	51.99
Per capita value (dollars)	27	32	39	50	54	53	56
British Columbia							
Operating expenditures	67.79	83.79	97.90	115.49	138.23	142.60	156.13
Fiscal transfer:							
Total	33.89	41.39	48.95	57.74	69.11	71.30	78.06
Tax points	24.88	30.11	37.07	38.82	46.75	56.12	64.93
Adj. payments	9.01	11.28	11.88	18.92	22.36	15.18	13.13
Per capita value (dollars)	17	21	24	27	32	32	34
All Provinces							
Operating expenditures	831.94	1,042.84	1,386.39	1,561.07	1,825.00	1,961.70	2,117.38
Fiscal transfer:							
Total	421.53	527.42	650.40	788.82	922.04	987.03	1,066.71
Tax points	239.68	293.52	345.06	380.76	444.04	519.47	609.67
Adj. payments	181.85	233.90	305.34	408.06	478.00	467.56	457.04
Per capita value (dollars)	21	26	31	37	43	45	48

The data in this table are in part preliminary and subject to revision. Source: Department of Secretary of State.

139. The 1967 Act made provision for a province to receive for 1967-68 a fiscal transfer equal to the greater of $15 per capita of provincial population, or an amount equal to 50 per cent of the eligible operating expenditures for post-secondary education in the province. For subsequent years, the provinces to which the 50 per cent formula applied remained entitled to transfers on that basis, while the provinces initially on per capita basis (Newfoundland, Prince Edward Island, New Brunswick) were to receive a yearly increase in the transfer in line with the increase in eligible post-secondary operating expenditures in all provinces combined, until such year as the other formula would produce a higher entitlement.

140. Part VI of the Federal-Provincial Fiscal Arrangements Act, 1972, retained the two basic formulae for calculating these payments, but set a yearly maximum of 15 per cent on the rate of increase in the total federal contribution. The 1972 Act originally provided for the continuation of the post-secondary education and adjustment payments for the fiscal years ending in 1973 and 1974. In December 1973 the provisions of Part VI of the Act were extended without change for a further three-year period, i.e., until March 31, 1977.

141. The post-secondary education adjustment payments are calculated and remitted to provincial governments by the Department of the Secretary of State.

142. In the first year (1967/68) the total federal contribution under the program amounted to $422 million and the annual amount rose at a rapid rate, especially during the next three years. According to a current estimate, the value of the fiscal transfer for 1973/74 is likely to be in the neighborhood of $1,067 million, of which $600 million will represent tax points and $467 million adjustment payments.

143. When the present program came into effect in 1967, the ranks of Canadians of post-secondary school age were growing at a record-breaking pace. By 1971 the number of 18-24 year olds in Canada had reached 2.7 million, an increase of 547,000 over a five-year period. This gain exceeded by more than 100,000 the growth of the 18-24 age group during the five years which preceded the introduction of the present program.

144. The rapid rate of growth of the 18-24 age group has been more than matched by the pace at which opportunities for post-secondary education were expanding. In 1966 the ratio of full-time post-secondary enrolments to the number of 18-24 year olds stood at 14.4 per cent. By 1971 the ratio had risen to 18.5 per cent.

145. There is some evidence, however, that in financial terms the present program has not benefitted all provinces in an equal fashion. This is partly due to the program's cost-sharing features, which in parctice are more advantageous to the richer provinces because these can better afford to incur their share of the cost. The fact that there existed a very substantial interprovincial disparity in the extent of post-secondary educational facilities before the present program came into effect is another reason why the value of the federal contribution to individual provinces has varied from the outset in per capita terms.

Thus in the first year of the program the per capita value ranged from the minimum guarantee of $15 applicable to Newfoundland, Prince Edward Island and New Brunswick to $27 for Alberta. In subsequent years the per capita value to each province grew at a fast pace, but the spread in terms of dollars per capita widened to a range of $35 - $56 by 1973-74. This effect of the existing fiscal transfer formula stands in sharp contrast to the earlier program of direct grants to universities under which the universities in each province received federal subsidies adding up to the same, although drastically lower, per capita figure for each province.

146. Despite these differences, participation rates increased significantly in all provinces except British Columbia, which led all other provinces in participation rates of post-secondary age students at the outset of the present program. It is also significant that the three Atlantic provinces, which originally qualified for the minimum per capita guarantee (because of their low education budgets at the outset of the program), increased their expenditures on post-secondary education by substantially higher rates than did the provinces receiving the straight 50 per cent contribution. In the case of Newfoundland, for instance, the increase between 1967-68 and 1973-74 amounted to 314 per cent, compared to an average of 154 per cent for all provinces combined. Table 1 shows fiscal transfers for post-secondary education from 1967-68 to 1973-74.

2. Equalization of Local School Taxes

147. On February 19, 1973, the Minister of Finance announced in his budget address that the government intended to broaden the equalization formula.

148. The resulting legislation provided for the inclusion, in revenues to be equalized, those revenues that are raised by local governments for school purposes. The latest estimate of equalization for 1973-74 would provide an amount of $160.4 million to the receiving provinces because of this addition to the formula.

149. The distribution of this amount by province is estimated to be as follows: Newfoundland, $20.1 million; Prince Edward Island, $4.1 million; Nova Scotia, $23.5 million; New Brunswick, $18.5 million; Quebec, $63.3 million; Manitoba, $11.0 million; and Saskatchewan $19.8 million. On a per capita basis, these payments are estimated to amount to $37 for Newfoundland; $36 for Prince Edward Island; $29 for Nova Scotia; $28 for New Brunswick; $10 for Quebec; $11 for Manitoba; and $22 for Saskatchewan.

150. In his budget address, the Minister of Finance expressed the hope that significant benefits of these additional unconditional grants to the provinces would be passed onto local ratepayers.

3. Citizenship and Language Instruction Agreements

151. About one-half of the immigrants who come to Canada are from countries in which neither English nor French is a mother tongue. In order to facilitate the social integration of these immigrants, the federal government provides language and citizenship instruction under the aegis of the Citizenship Branch of the Department of the Secretary of State. The instruction takes place under cost-sharing agreements between the federal government and the provincial and territorial governments.

152. The question of teaching second languages to adults became a matter of direct concern to the Citizenship Branch as early as 1946-47 when the arrival of the first contingent of Polish veterans clearly established the need for language instruction. In May of 1947, a meeting of provincial education authorities was arranged by the Citizenship Branch to discuss a possible program of language classes for immigrants to function under provincial auspices. The provinces agreed to organize and conduct such classes as part of their regular night school programs. The Citizenship Branch undertook to provide, upon request, textbooks in both English and French to adult immigrants participating in the classes.

153. In 1953 some provincial education officials approached the Branch to provide financial support for the classes, in addition to supplying textbooks. Apparently, many local school boards, which were directly responsible for the classes, were finding teachers' salaries an increasing burden on local tax-payers as the program developed. Consequently the federal government entered into formal agreements with all provinces except Quebec, which joined in December 1969. In these agreements, the federal government undertook to pay 50 per cent of amounts expended by the provinces towards teaching costs (teachers' salaries) of language and citizenship classes for adult immigrants. Although no reference was made in the agreements to the provision of textbooks, the Citizenship Branch continued to supply them free on demand, as in the past, to classes in all provinces.

154. An amendment to the agreements in 1958 extended "teaching costs" to include registration fees charged by local school boards for instruction provided to indigent immigrants during their first year of residence in Canada.

155. During the early years of the program, the provision of textbooks by the Branch presented no problems. Selection of textbooks suitable for adult use was not a factor, as few were in existence. The situation, however, gradually changed as more and more publishers became interested in language instruction for adults, with an increasingly impressive array of new textbooks. At the same time, since teachers were becoming more experienced in teaching second languages to adults, they were anxious to try out new methods and programs. Thus the position of the Citizenship Branch became increasingly difficult relative to selection of texts. In 1962 the Branch approached the provinces to select, purchase, and distribute their own language textbooks and claim reimbursement from the federal government.

156. At the present time all provinces and territories are party to the Citizenship and Language Instruction Agreement; and all provinces but one, and the territories, have signed the Textbook Agreement. The Citizenship Branch reimburses each province or territory for 50 per cent of its expenditures for instructors' salaries, and up to 100 per cent for textbook costs. Each province and territory is responsible for the operation of classes, and the selection, purchase and distribution of textbooks.

157. In general, classes are organized and conducted by local school authorities as part of the regular night school program. The teachers are, in the majority of cases, professionals employed in elementary or secondary school systems; others are former teachers. While the general course of instruction is outlined by provincial education authorities, local night school principals and teachers often have considerable latitude in determining methods and texts.

158. Courses are based on a two-year program of instruction which adheres to the regular pattern established for night school courses. Classes are held two nights each week for a period of two hours extending from 20 to 26 weeks a year, between October and March. In some of the major centres, classes continue throughout the summer months, especially for beginners.

159. Financial support for the classes normally takes the form of grants from the provincial departments of education to the local school boards. The amount of the grant differs from province to province, although it is related to the general provincial grant structure in support of night school classes.

160. During the fiscal year 1973-74, the Department of the Secretary of State disbursed $934,000 under the Instruction Agreement and $100,000 under the Textbook Agreement.

161. Examination of the delivery system of second language and citizenship instruction has revealed several weaknesses or problem areas, which are being studied with a view to a possible revision of the agreements and an extension of the program. The matters under consideration include:

- special language training for immigrant children;
- limited opportunities to learn the language by immigrant women, especially the non-working married woman;
- introduction of wider range of teaching aids (e.g., audio-visual aids) and materials for language instruction;
- training of teachers of French and English as a second language;
- extension of grants to other operating agencies to make language training more universally available;
- quality control of instruction;
- citizenship training and orientation as part of the language training program;

- accessibility of the program to immigrants.

4. Teaching of Official Languages

162. As a result of the work of the Royal Commission on Bilingualism and Biculturalism (see Chapter I), the federal government established the Language Programs Branch within the Department of the Secretary of State. This Branch began its work in 1970 with the objectives of enabling Canadian children to be educated in their official language (English or French) and students to learn the other official language as a second language. Programs concerning bilingualism in education were then developed under federal-provincial agreements. These programs were to increase provincial services in the fields of official minority language education and the teaching of the second official language. Essentially, funds are provided in the form of partial reimbursement for teaching programs carried out. For the initial phase, from 1970 to 1974, the federal government allocated approximately $300 million to the Language Programs Branch. The Branch designed programs to provide: financial assistance for the development of bilingualism in education at the elementary, secondary, and university levels; and bursaries to university students for language immersion courses. The Branch also operates programs to encourage bilingualism in provincial governments, national associations, and private enterprises.

163. For development of bilingualism at the university level, grants are provided to the provinces to assist post-secondary institutions which offer education in the minority language (including language training centres). Funds are also distributed in the form of travel bursaries to students who cannot pursue their studies in their own language in their own province. In addition, bursaries are given to second-language teachers who wish to take short refresher courses. The total amount of funds granted under this program in 1973-74 was approximately $11 million.

164. Funds for development of bilingualism at the elementary and secondary levels are distributed in three ways: grants to the provinces for education of students in the minority language (at 9 per cent of the average annual cost); grants for teaching the second language to other students (at 5 per cent of the average annual cost); and grants of 1.5 per cent to help defray the administrative cost of education of students belonging to a minority language group. The cost of this program to the federal government was $50 million in 1970-71 (its first year) and $71.4 million in 1973-74. In the first four years, the total amount granted to the provinces was approximately $240 million. Of this amount, the province of Québec received a total of about $137 million, which represents the largest provincial share. Tables 2 and 3 show recent data on enrolments in second language study, and the language of instruction of elementary and secondary schools in Canada.

165. Special Projects. The program of federal assistance for special projects is designed to enable provincial governments to identify spheres of activity in which substantial progress may be possible in the development of bilingualism in education. Each province is encouraged to propose innovative and experimental projects in minority language education or second language instruction at any level of education.

TABLE 2

ENROLMENT IN SECOND LANGUAGE STUDY,
1970-71 TO 1973-74

Level	Enrolment	
	Number	%
Quebec: Students Studying English		
Kindergarten - Grade 7:		
1970-71	302,700	35.8
1971-72	287,200	35.5
1972-73	249,600	33.4
1973-74	233,850[e]	33.4
Grades 8 - 12:		
1970-71	543,966	99.9
1971-72	567,530	100.0
1972-73	606,300	100.0
1973-74	599,075[e]	100.0
All Other Provinces: Students Studying French		
Elementary:		
1970-71	728,279	29.2
1971-72	767,979	30.8
1972-73	816,549	33.3
1973-74	839,401[e]	34.8
Secondary		
1970-71	748,065	55.7
1971-72	732,943	53.2
1972-73	653,756	47.0
1973-74	619,419[e]	43.5

e - estimate

Source: Statistics Canada, Education Service Bulletin, Vol. 2 #4, 1973, and unpublished data.

166. The amount of federal reimbursement with respect to such projects does not normally exceed 50 per cent of the total cost. Expenditures of a capital nature are generally not admissible. Special projects are based on clearly defined arrangements and conditions, details of which may be obtained from provincial departments of education, or from the Language Programs Branch. In calculating the amount of reimbursement for special projects, the federal government may take into account the funds it is contributing to the province concerned under other language programs.

TABLE 3

PUBLIC AND PRIVATE ELEMENTARY AND SECONDARY SCHOOLS, BY LANGUAGE OF INSTRUCTION, 1971

Province	Public		Private		Total		Grand Total
	English	French[1]	English	French[1]	English	French[1]	
Newfoundland	788	-	3	1	791	1	792
Prince Edward Island	177	7	-	-	177	7	184
Nova Scotia	639	32	8	-	647	32	679
New Brunswick	254	196	16	-	370	196	566
Quebec	461	3,232	58	27	519	3,506	4,025
Ontario	4,414	381	263	10[2]	4,677	391	5,068
Manitoba	710	49	41	3	751	52	803
Saskatchewan	1,024	12	15	1	1,039	13	1,052
Alberta	1,233	35	34	1	1,267	36	1,303
British Columbia	1,501	1	155	-	1,656	1	1,657
Canada	11,301	3,945	593	290	11,894	4,235	16,129

1 - Includes some bilingual schools in some provinces.

2 - Estimate

Source: See Table 2.

5. Financial Assistance for Provision of Educational Facilities

167. Since its establishment in 1969, the Department of Regional Economic Expansion (DREE) has assisted in the financing of certain educational facilities under its Special Areas Program. Designed to stimulate development in slow growth areas of Canada, the program includes among its components assistance in upgrading of community services. Funds are provided in the form of contributions and/or loans, depending on individual federal-provincial agreements.

168. Assistance for provision of educational facilities is also available under the Fund for Rural and Economic Development (FRED), authorized by an Act of Parliament in 1966. It provides for the development of comprehensive plans in selected areas, such as Prince Edward Island, North East New Brunswick, parts of Manitoba, and Gaspé in Québec.

Certain capital expenditures have been made for education facilities, and in the fiscal year 1972-73 these included $168,000 in Prince Edward Island and $278,000 in New Brunswick. In the same year, $316,000 was contributed to Prince Edward Island for the field of adult education.

C. Support Programs: Support to Institutions

1. Grants to Universities

169. Federal support of university research is channeled primarily through three funding Councils: the National Research Council; the Medical Research Council; and the Canada Council. In addition, a number of other federal government departments and agencies are involved in the provision of grants.

170. Federal grants to the university sector may be awarded either directly to faculty members or to institutions. However, the two are closely associated. An institution may receive a grant because of the research interest and expertise of its faculty members; and grants may be awarded to individuals because of their association with a field of research carried on at a university.

171. Grants to the university sector can be classified into three types: research grants; research fellowships; and auxiliary grants. Research grants are funds awarded to faculty members and/or universities to assist them in the performance of projects initiated and controlled by the grant recipients. Research fellowships are funds awarded to faculty members for assistance in carrying out research projects aimed at developing competence or training. The last category, auxiliary grants, comprises funds awarded to faculty members or institutions for purposes indirectly related to research.

172. National Research Council of Canada. Established in 1916, the National Research Council of Canada was charged with undertaking, assisting and promoting scientific and industrial research in Canada. Over the years NRC has promoted the development of a broad base of scientific and engineering competence in Canada in its own laboratories and in the university and industrial communities.

173. Research grants to universities are considered essential for the creation of new knowledge, for the application of science, and for the effective use of national scientific and technological resources. The maintenance of a strong scientific base in Canada also calls for development of highly qualified manpower through research training in universities.

174. In 1972-73 NRC spent $66.7 million under its programs of scholarships, fellowships and grants in aid of research and related undertakings. The bulk of this support went to the following recipients:

- faculty members, $54.04 million;
- graduate students and post-doctorate fellows in universities, $8.36 million;
- universities, $3.04 million.

175. The majority of research grants are awarded to individual researchers on the basis of merit of their research proposal and their proven excellence in research (fundamental or applied) as judged by discipline-oriented selection committees. Individual research grants form the backbone of NRC support to university research. The major component comprises individual operating grants, which in 1972-73 numbered 4,900 amounting to $37.8 million. This represented an increase of some 3,900 grants and $31.7 million since 1961-62.

176. The fields of science supported through NRC awards to university researchers include: agriculture, astronomy, biology, chemistry, computing and information science, engineering, physical geography, geology, geophysics, mathematics, metallurgy, meteorology, oceanography, physics, space research and experimental psychology.

177. Medical Research Council. The Medical Research Council had its beginnings in 1939 with the establishment of a National Research Council committee for Medical Research. In 1960 the Medical Research Council became an autonomous granting body, but still attached to NRC. In 1968 the Medical Research Council became a separate Crown Corporation.

178. The objectives of MRC are to help attain the quality and scale of research in the health sciences essential to the maintenance and improvement in health services.

179. Research grants and research fellowships are awarded to faculty members. Awards are made on the basis of relevance to health, and are given on the recommendation of review committees.

180. Canada Council. The establishment of the Canada Council in 1957 (see Chapter I) gave rise to major programs of grants and fellowships in support of university research in the humanities and social sciences.

181. Over the years the Canada Council has provided increasing grants to enable Canadians to master the skills of original inquiry, conduct research, and share progress and results of their activities in the social sciences and humanities. All of the support given through the Council to social sciences and humanities is for work specified by the scholars themselves, and judged deserving by their peers. However, the Council is not the only channel through which the federal government provides for university work in the humanities and social sciences.

182. Extent of Funding. As shown in Tables 4 and 5, the Government of Canada provided $121.2 million in grants to faculty members and universities in 1972-73. More than 80 per cent of this funding was channeled through the three granting Councils as follows: NRC - $56.7 million; MRC - $34.0 million; Canada Council - $8.3 million. These figures do not include post-doctoral fellowships and other forms of student support shown in Table 7.

183. Grants amounting to $22.2 million in 1972-73 were provided by nineteen federal departments and agencies. Among these, the largest sources were the Atomic Energy Control Board, the Department of National Health and Welfare, and the Defence Research Board.

TABLE 4

GRANTS TO FACULTY MEMBERS AND UNIVERSITIES, 1972-73

Department or Agency	Recipient: Faculty Member				Recipient: University			Grand Total
	Research Grant	Research Fellowship	Auxiliary Grant	Total Faculty	Research Grant	Auxiliary Grant	Total University	
	(thousands of dollars)							
National Research Council	52,389.4	121.2	1,121.1	53,631.7 (49.8%)	3,040.8	-	3,040.8 (22.6%)	56,672.5 (46.7%)
Medical Research Council	32,164.2	1,840.1	-	34,004.3 (31.6%)	-	-	-	34,004.3 (28.0%)
Canada Council	4,171.0	2,632.0	32.1	6,835.1 (6.3%)	-	1,496.5	1,496.5 (11.12%)	8,331.6 (6.87%)
Sub-total	88,724.6	4,593.3	1,153.2	94,471.1 (87.7%)	3,040.8	1,496.5	4,537.3 (33.73%)	99,008.4 (81.67%)
Agriculture	550.0	-	-	550.0	-	-	-	550.0
Atomic Energy Control Board	2,499.0	-	-	2,499.0	5,300.0	-	5,300.0	7,799.0
Canadian Radio & Television Corp.	-	-	-	-	69.0	-	69.0	69.0
Central Mortgage & Housing Corp.	431.4	-	-	431.4	-	-	-	431.4
Consumer & Corporate Affairs	-	-	-	-	2.0	-	2.0	2.0
Defence Research Board	3,000.0	-	-	3,000.0	-	-	-	3,000.0
Energy, Mines & Resources	806.8	-	-	806.8	-	-	-	806.8
Environment	463.7	-	-	463.7	1,200.0	192.0	1,392.0	1,855.7
External Affairs	-	-	-	-	-	400.0	400.0	400.0
Indian & Northern Affairs	-	-	-	-	397.4	-	397.4	397.4
Industry, Trade & Commerce	199.4	-	-	199.4	-	-	-	199.4
Labour	31.1	-	-	31.1	-	-	-	31.1
Manpower & Immigration	65.0	-	-	65.0	-	-	-	65.0
National Defence	-	-	-	-	-	250.0	250.0	250.0
National Health & Welfare	4,800.0	200.0	-	5,000.4	117.5	169.6	287.1	5,287.5
National Museums	-	25.0	-	25.0	-	244.3	244.3	269.3
Secretary of State	230.0	-	-	230.0	176.1	99.0	275.1	505.1
Solicitor General	-	-	-	-	92.0	39.0	131.0	131.0
Transport	-	-	-	-	165.0	-	165.0	165.0
Sub-total	13,076.8	225.0	-	13,301.8 (12.3%)	7,519.0	1,393.9	8,912.9 (66.27%)	22,214.7 (18.33%)
GRAND TOTAL	101,801.4	4,818.3	1,153.2	107,772.9 (100.0%)	10,559.8	2,890.4	13,450.2 (100.00%)	121,223.1 (100.00%)

Source: Survey carried out by the Education Support Branch, Department of the Secretary of State.

TABLE 5

SUMMARY OF GRANTS TO FACULTY MEMBERS AND UNIVERSITIES, 1972-73

	Recipient: Faculty Member		Recipient: University		Total	
	$'000	%	$'000	%	$'000	%
Research Grant	101,801.4	94.46	10,559.8	78.51	112,361.2	92.69
Research Fellowship	4,818.3	4.47	-	-	4,818.3	3.97
Auxiliary Grant	1,153.2	1.07	2,890.4	21.49	4,043.6	3.34
TOTAL	107,772.9	100.00	13,450.2	100.00	121,223.1	100.00
Percent of Total	88.90		11.10		100.0	

Source: See Table 4.

184. Grants to faculty members amounted to $107.8 million in 1972-73, while $13.5 million in grants went to universities.

185. Research grants accounted for nearly 93 per cent of the federal grants to faculty members and universities. The balance comprised research fellowships and auxiliary grants. While auxiliary grants awarded to faculty members are used chiefly for travel and exchange, those extended to universities are intended for publications, conferences and program development.

2. Contracts with Universities

186. In addition to a program of grants, the federal government provides support to universities through a system of contracts. Contracts differ from grants in that they are awarded to faculty members or universities as compensation for performance of projects initiated by federal departments and agencies. The objectives of the contract are stipulated by the contracting agency, but terms are negotiated with the contracting party. The recipient is accountable for funds expended. A department or agency may enter into a contract with a university or faculty member when lack of time, expertise or specialized equipment make it impractical for the department or agency concerned to carry out a project within its own establishment.

187. Extent of Funding. During 1972-73, departments and agencies of the Government of Canada awarded contracts worth $7.5 million to faculty members and universities. Table 6 shows the value of contracts awarded by individual departments to faculty members and universities, respectively.

3. Loans for Provision of Student Housing

188. Part VII of the National Housing Act authorized the Central Mortgage and Housing Corporation (CMHC) to make loans to assist in the construction, acquisition or improvement of student housing projects. Such loans may be made to provincial, municipal, institutional, charitable or cooperative borrowers with provincial concurrence for projects which may include, in addition to housing, the ancillary facilities necessary for the operation of a project (e.g., dining rooms, cafeterias, lounges).

189. Collaboration with the provinces is integral to the decision process. In fact, no loan is made under this Act unless the province concerned has approved the loan. These loans may be up to 90 per cent of the cost of the project, at rates periodically established by Governor-in-Council, and for terms up to 50 years.

190. During the year 1974, seven loans amounting to $4.8 million to provide for accommodation for 523 students were approved. This activity brought to 343 and $438 million the number and amount of student housing loans approved during the twelve years this legislation has been operative. Altogether, 68,725 single and 7,092 married students and their families have been accommodated under this program.

TABLE 6

CONTRACTS WITH FACULTY MEMBERS AND UNIVERSITIES, 1972-73

Department	Faculty Members	Universities	Total	%
	(thousands of dollars)			
Agriculture	150.0	-	150.0	2.0
Atomic Energy of Canada Limited	-	587.0	587.0	7.82
Atomic Energy Control Board	96.0	-	96.0	1.28
Communication	-	567.9	567.9	7.57
Defence Research Board	-	230.8	230.8	3.08
Environment	96.4	449.8	546.2	7.28
External Affairs	6.5	8.4	14.9	0.20
Finance	-	28.1	28.1	0.37
Indian and Northern Affairs	-	1,259.7	1,259.7	16.78
Manpower and Immigration	-	200.0	200.0	2.66
National Health and Welfare	1,030.7	2.0	1,032.7	13.76
National Museums	443.0	-	443.0	5.90
National Research Council	407.6	-	407.6	5.43
Science Council	33.6	104.5	138.1	1.84
Secretary of State	42.8	155.0	197.8	2.64
Solicitor General	-	50.0	50.0	0.67
Statistics Canada	129.1	-	129.1	1.72
Transport	-	491.8	491.8	6.55
Urban Affairs	-	934.0	934.0	12.45
TOTAL	2,435.7	5,069.0	7,504.7	100.00

Source: Survey carried out by the Education Support Branch, Department of the Secretary of State.

4. Sales Tax Exemptions

191. Under the Excise Tax Act provision is made for reimbursement of sales taxes paid for materials for education buildings. More specifically, the provision applies to materials which have been purchased by or on behalf of:

i) a school, university or other similar educational institution for use exclusively in the construction of a building for that institution;

ii) any organization for use exclusively in the construction of a building for that organization that is to be used exclusively or mainly as a public library operated by or on behalf of that organization on a non-commercial basis;

iii) a corporation wholly owned and controlled by Her Majesty in right of a province that is established for the sole purpose of providing residences for students of universities or other similar educational institutions, for use exclusively in the construction of such residences.

192. If application for refund of sales tax is made within two years of purchase of materials, an amount equal to the tax spent will be repaid to the recipient institution. In recent years, sales tax refunds to educational institutions added up to the following amounts:

1966-67	$20,584,000
1971-72	$21,541,000
1973-74	$23,000,000 (estimated)

D. Support Programs: Support to Students

1. The Canada Student Loans Plan

193. With the rapidly increasing post-secondary enrolments of the early 1960's, it became apparent that existing sources of financial assistance for post-secondary study were insufficient to meet the demands placed upon them. There was also a growing feeling that a large number of talented young people were unable to attend university because of inadequate financial resources.

194. In 1964, the federal government established the Canada Student Loans Plan. Under this plan, loans are made to eligible full-time students enrolled in post-secondary courses at approved educational institutions. Originally a student could borrow up to $1,000 per academic year (up to a total maximum of $5,000). Students are given from five to ten years to pay back these loans. The federal government agrees to pay charges and interest on the loans (made by Canadian banks and credit unions) while the student continues his studies and for six months thereafter. Repayment is on a monthly basis and normally begins six months after studies are completed. These loans are guaranteed by the federal government in the case of default or death. The general administration of the plan is carried out by provincial governments.

195. The plan generally makes no distinction between full-time undergraduates and graduate students, or university and technical institute students. To obtain a loan, the student must file an application which includes an assessment of his financial resources and needs. These applications are made to the student's province of residence and are subject to an evaluation. If, after assessing family-student resources, financial need is not established, no loan is given.

196. In 1972, in response to increased financial needs, the Canada Student Loans Plan raised the loan limits from $1,000 to $1,400 for one year, and from $5,000 to $9,800 overall. As well as providing for increased students' expenses, this revised plan is also more suitable for students engaged in longer study programs such as medicine or law. It should be noted that most provinces have financial assistance programs, often in the form of bursaries or grants, to supplement the federal program. With a combination of federal loans and provincial bursaries, students could obtain, in 1971-72, up to $1,400 in British Columbia, and a maximum of $5,000 in Alberta.

197. Since the introduction of the plan in 1964 to the end of the academic year 1972-73, the value of loans and the number of students receiving assistance each year have increased dramatically. Loans increased from $26 million to $100 million and the number of students rose from 42,000 in 1964-65 to about 122,000 in 1973. In the same period, enrolment in post-secondary institutions increased from

220,000 to 543,000. In its first nine years, the plan provided $565.2 million in loans to almost 863,000 students. The cost of the plan (interest payments, loss claims, death claims and collection fees) to the federal government for the year 1972-73 was less than $25 million. The total cost of the plan since its inception has been approximately $100 million.

198. Since the plan is directed to a clientele that is varied, with different needs, the results have been uneven. Provinces with greater financial resources offer lower loan ceilings and larger grants and bursaries, with the result of lowering the overall level of the student's indebtedness. The exclusion of part-time students from the plan has been criticized. As a result, one province has developed its own loan scheme on a limited experimental basis for these students, which has prompted further discussion by other provinces and the federal government.

199. Furthermore, questions have been raised about procedures for determining the amount of money a student really needs. For instance, it is uncertain that all standard expenses of a married student are taken into account. In addition, there has been criticism that parents are often expected to contribute more than they are able to.

200. There is also concern about the variation in students' ability to repay loans once they have graduated. For example, it is easier for a medical school graduate to repay his loan than for some graduates of vocational schools.

201. While it is evident that the Canada Student Loans Plan has increased the degree of accessibility of post-secondary education, the extent to which it had done so for various sub-groups is not precisely known. This question and those raised earlier are currently being examined.

202. The province of Québec operates its own loan and bursary scheme, and receives alternative payments from the federal government.

2. Allowances, Bursaries, Scholarships and Fellowships

203. In addition to loans under the Canada Student Loans Plan discussed earlier, the three funding Councils and a number of federal departments and agencies have programs of awards which provide funding directly to students or through provincial bodies. The objectives of these programs are related to the missions of the departments or agencies concerned. There are five major types of award programs for students. These are described below:

Fellowship

A fellowship is an award to a student to assist him or her in carrying out research projects aimed at developing competence or training. Studies on a fellowship are usually related to candidacy for advanced degrees (i.e., masters or doctorates).

Bursary
A bursary is an award given to a student who demonstrates financial need and has reached a designated level of achievement in his or her studies.

Scholarship
A scholarship is an award given without an assessment of financial need when a student has reached a designated level of achievement in his or her studies.

Grant
A grant is an award given to a student who demonstrates financial need.

Allowance
An allowance is financial assistance given to a student purely in recognition of full-time attendance at an institution (including support for lodging, food, etc).

TABLE 7

AWARDS TO STUDENTS', 1972-73

Department/Agency	Fellowship	Bursary	Scholarship	Allowance[2]	Grant[3]	Fees	Research Contract	Total	
	(thousands of dollars)							$'000	%
National Research Council	1,273.6	964.2	8,052.7	-	-	-	-	10,290.5	5.53
Medical Research Council	-	-	1,257.4	-	-	-	-	1,257.4	0.68
Canada Council	-	-	9,200.0	-	-	-	-	9,200.0	4.95
SUB-TOTAL	1,273.6	964.2	18,510.1	-	-	-	-	20,747.9	11.16
Agriculture	1,881.3	-	-	-	-	-	-	1,881.3	1.01
CIDA	-	-	37.2[4]	-	-	-	-	37.2	0.02
Central Mortgage and Housing Corporation	-	-	924.9	-	-	-	-	924.9	0.50
Eldorado Nuclear	-	1.5	1.3	-	-	-	-	2.8	-
Environment	-	-	10.0	-	70.0	-	1.5	81.5	0.04
Indian & Northern Affairs	32.0	-	39.0	8,046.0[6]	-	-	-	8,117.0	4.36
Justice	16.0	-	-	-	-	-	-	16.0	0.01
Labour	-	-	-	-	9.8	-	-	9.8	0.01
Manpower & Immigration	-	-	-	138,439.0[7]	-	-	-	138,439.0	74.43
National Defence	20.7	-	16.3	11,761.0	-	545.0	-	12,343.0	6.64
National Health & Welfare	180.3	61.3[5]	886.0	-	-	-	-	1,127.6	0.06
National Museums	-	-	2.5	-	-	-	-	2.5	-
National Parole Board	-	-	-	-	-	5.5	-	5.5	-
Secretary of State	-	506.6[5]	512.7	-	-	-	-	1,017.3	0.55
Transport	173.0	-	-	-	-	103.2	-	276.2	0.15
Veterans Affairs	-	-	-	959.2	-	-	-	959.2	0.52
SUB-TOTAL	2,303.3	567.4	2,429.9	159,205.2	79.8	653.7	1.5	165,240.9	88.84
GRAND TOTAL	3,576.9	1,531.6	20,940.0	159,205.2	79.8	653.7	1.5	185,988.7	100.00

1 - Excluding support for federal government employees
2 - Excluding allowances to employees of a department or agency on education leave
3 - Including research
4 - Including living allowances
5 - Funds provided by the federal government; administered by the provinces
6 - Includes $66,000 for books and supplies
7 - Includes $114,000 for books and supplies and $667,000 for parents of elementary and secondary students resident on Canadian military bases

Source: Survey carried out by the Education Support Branch, Department of the Secretary of State.

204. Furthermore, student assistantships are frequently included in research grants and contracts awarded to university faculty. Another area of student aid are programs administered by the Canadian International Development Agency. Under these programs students are brought to Canada or trained in developing countries as part of technical assistance to developing countries.

205. Extent of Funding. In 1972-73, awards to students from federal sources amounted to $186 million disbursed in the form of fellowships, bursaries, scholarships, allowances, and other forms of non-repayable student aid. More than two-thirds of the total amount was expended by the Department of Manpower and Immigration on training allowances under the Canada Manpower Training Program. Awards to students made by the three Funding Councils totalled nearly $21 million. These awards included $9.2 million in Canada Council scholarships, which went mainly to candidates seeking doctoral degrees in the humanities and social sciences; $10.2 million disbursed by the National Research Council under a number of award programs, including post-graduate scholarships, science scholarships, post-industrial research scholarships, and library and documentation scholarships; and close to $1.3 million in scholarships awarded by the Medical Research Council. Other federal sources, comprising a number of departments and agencies, provided awards totalling $27 million in 1972-73. The amounts awarded to students by each department or agency are shown in Table 7.

3. Income Tax Reductions

206. Tuition Fees. In 1961 the Income Tax Act was amended to permit students to deduct tuition fees for 1961 and subsequent taxation years. A student may deduct tuition fees (not books or other expenses) from his income if:

i) the fees were paid to an educational institution in Canada and were over $25;

ii) he resided in Canada near the United States border throughout the year and commuted to an educational institution in the United States, providing courses at a post-secondary school level and the fees which he paid to that institution were over $25; or

iii) the fees were paid to a university outside Canada where he was in full-time attendance in a degree course for not less than 13 consecutive weeks.

207. While only the student may deduct tuition fees from his income, he may do so regardless of whether he paid the fees himself or some other person paid them for him. In the 1972 taxation year, students claimed tuition fee deductions totalling $172 million. These deductions reduced income tax revenues by an estimated $34 million.

208. Education Deduction. In 1973 the Income Tax Act was amended to permit students to claim education cost deductions retroactive to the 1972 taxation year. The revenue forgone under this provision by

the federal government amounted to approximately $50 million in 1972.

209. The education deduction is set at $50 for each month which a student was in full-time attendance at a designated educational institution. This deduction may be claimed either by the student or a supporting individual. Designated educational institutions include universities, colleges and other institutions offering job retraining or adult education courses in Canada.

4. Youth Allowances

210. Subject to the Family Allowances Act of 1973, a monthly family allowance of $20 is paid for each child whose parents are resident in Canada. A "child" means an individual resident in Canada who is less than 18 years of age. There is no stipulation that a child must attend a school to receive the allowance, but clearly the Act assists parents to keep more of their children in school longer. Allowances are adjusted each year with the Consumer Price Index for a twelve-month period.

211. Prior to 1973, allowances were payable to Canadian families having a dependent youth. Provided under the Youth Allowances Act of 1964, these allowances, in the amount of $10 per month, encouraged Canadian students to attain higher education levels. Subject to this Act, out of the Consolidated Revenue Fund, a monthly allowance of ten dollars was paid to a parent.

212. A "dependent youth" meant a person resident in Canada who was 16 years old but not 18 and was in full-time attendance at a school or university; or was by reason of any mental or physical infirmity precluded from attending at a school or university.

213. The youth allowances, which were part of the Income Security and Social Assistance Program of the Department of National Health and Welfare, were administered by the regional Family Allowances Office in each provincial capital. The Province of Québec had its own schooling allowances program, with compensation from the federal government to the province through tax abatements.

214. Examples of federal government expenditures for this program are as follows:

1965: $26,869,815 on behalf of 398,637 students

1966: $46,468,633 on behalf of 404,794 students

1973: $59,340,495 on behalf of 513,714 students

E. Information Services

1. Statistics Canada

215. When the Dominion Bureau of Statistics (the forerunner of Statistics Canada) was created in 1918 by an Act of Parliament, statistics of education

were considered of sufficient importance to warrant the establishment of a division so that education statistics for the provinces could be consolidated into Canadian totals. With an initial program in the early years devoted almost exclusively to the statistics of enrolment and number of teachers in public elementary and secondary schools, the Education Division has grown over the years into an organization which collects, compiles and disseminates information on all levels of education and all types of educational institutions. The program has developed through close cooperation with provincial ministries of education and through the vehicle of federal-provincial conferences (involving not only provincial ministries but also non-governmental organizations of teachers, trustees, researchers, and administrators).

216. The activities of the Education Division were expanded in 1970 to embrace science statistics and statistics of culture. The current name of the Division, the Education, Science and Culture Division, dates from 1973.

217. The first statistical report on education was issued in 1921 under the title "Historical Statistical Survey of Education in Canada." In the years since, the number and frequency of reports have increased steadily, until today there are 43 annual publications and an almost equal number of occasional ones. All current publications are bilingual.

218. The current program of education statistics (covering essentially the three functions of teaching, enrolment and finance) is organized into three major areas: elementary-secondary education: post-secondary education; and vocational-continuing education. A development and research work-unit undertakes special non-recurring studies in response to important user needs.

219. While the publication activity of the Division has intensified considerably in recent years, significant resources have been devoted to the establishment of data retrieval systems so that information can be made available to users on request. These systems currently relate to the files for university students, university faculty and elementary and secondary teachers. Each system utilizes individual records and allows for a wide variety of cross-tabular analysis.

220. One of the major thrusts of the Division's current statistical program is the development of a series of projects to measure and describe participation in continuing education in Canada. At present, the program generates information related to the courses and programs offered by educational institutions, but plans are being finalized for extending the program to include adult education activities of voluntary organizations, business and industry, government departments. and professional associations. In addition, a national sample survey of the population is planned for 1975 to study the characteristics of both participants in continuing education and non-participants.

221. Two special publications were released in 1973-74: "Education in Canada," a compendium of statistics on all levels of education covering the decade 1960-61 to 1970-71; and "Decade of Education Finance," a review of the expenditures on education from 1960-69.

222. The Division regularly releases a publication in advance of each current school year giving summary data for the two previous years and estimates for the next three. It is published under the title "Advance Statistics of Education."

223. In addition, a Service Bulletin is also published by the Division on an irregular basis. The Bulletin is designed to accommodate release of preliminary data from surveys in advance of regular publication. Approximately 10 Service Bulletins are published each year.

2. Canada Institute for Scientific and Technical Information

224. The first central scientific library for Canada was established in 1916 as a library within the National Research Council of Canada (NRC). By building a scientific library, which eventually would be associated with its proposed laboratory system, the Council hoped to be able to stimulate and assist research at all centres of learning and industry in Canada.

225. The NRC Library was developed in accordance with this basic principle and was providing many national services for the Canadian scientific and technical community when the National Library Act became effective January 1st, 1953. In order to avoid duplication of resources and to permit the National Library to concentrate its efforts on other substantive areas, the NRC Library's role as a National Science Library was recognized. This was confirmed in 1966, when the NRC Act was revised. Today the resources of the National science Library and NRC's Technical Information Service have been combined to form the Canada Institute for Scientific and Technical Information (CISTI).

226. CISTI has in its collection nearly 1,000,000 volumes, many of which are in non-print forms (microfiche, microfilm, magnetic tape). Approximately 20,000 journal titles from all parts of the world are held by CISTI. Depository collections include technical and research reports issued by a number of national and international information agencies. Many of these are in microfiche form, and the Institute has equipment to prepare duplicates and printouts from its master files. A reference staff is available to assist clients from industry, universities and government. Services are designed to supplement local and regional information resources and include the following:

- answering requests for scientific and technical information;
- compiling bibliographies and carrying out literature searches;
- identifying obscure references and locating "hard to find" publications;
- identifying human expertise in science and technology.

227. In CISTI, NRC has concentrated its principal information transfer systems into a single point of focus for the use of the evolving Canadian network of scientific and technical information (STI) services. The

Institute provides national STI services which cannot be supplied by other organizations, and at the same time links the Canadian network of STI services and other foreign and international STI services.

228. The Technical Information Service (TIS), for instance, provides scientific and technical information to small and medium-sized industrial firms that do not have information specialists. The distinctive feature of TIS is its field service, whose engineers and scientists visit plants in their area. TIS has 16 offices across the country. TIS/NRC is internationally recognized as a unique organization and a number of countries have already used it as a model.

229. The Institute also offers a service called Canada Selective Dissemination of Information (Can/SDI). This is a current awareness service which alerts subscribers on a regular basis to recent papers in their particular fields. This service, begun in 1969, now has 1,900 subscribers, which represents a total of some 6,000 users.

230. Retrospective searches can be obtained through Canada On-Line Enquiry (Can/OLE), a service available to Canadian researchers, engineers, and technologists through 30 regional centres. A similar system for the medical profession (MEDLINE) is also available.

231. Canadian Technical Awareness Program (Can/TAP), a service similar to Can/SDI, provides specially analyzed and selected articles called Technical Briefs to altert industry to new technological developments. More than 80,000 copies of these briefs are provided to industry annually by this TIS program.

3. National Library of Canada

232. In 1950 the federal government established the Canadian Bibliographic Centre. In the following year, the Royal Commission on National Development in the Arts, Letters and Sciences (Massey Commission) recommended a National Library. The Parliament of Canada responded in 1952 with the passage of the National Library Act, which became law on January 1, 1973.

233. Broadly speaking, the Library collects publications in the humanities and social sciences, with Canada as its area of special interest, i.e., Canadian publications as well as foreign publications about Canada or written by Canadian authors. Its collection is estimated at 700,000 volumes and 33,000 microfilms.

234. The Library, which acts as a coordinating body among Canadian libraries, offers its services to researchers including government officials, writers, professors and post-graduate students. An extensive bibliographic section offers bibliographies on topics from the humanities and social sciences of largely Canadian interest. An automated information retrieval service entitled Selective Dissemination of Information (SDI) is also offered by the Library. An interest profile is constructed for an individual or group and matched by a computerized process against one or several data bases. Users receive at regular intervals a printout listing of recently published books and journals. This

service is extended to the entire Canadian research community. "Canadiana" is a current national bibliography which lists publications of Canadian origin and interest and is distributed to all libraries. Another service, the Canadian Union Catalogue, lists the holdings of over 300 Canadian libraries and provides locations for all types of library material. The National Library provides reference and location services to researchers in Canada and in other countries.

235. Canadian theses on microfilm is a service offered by the National Library to Canadian universities. Participation is on a voluntary basis. In addition, an annual publication lists all theses accepted by Canadian universities during the academic year.

236. A Library Documentation Centre has been established to serve the Canadian Library community by making available the most up-to-date information on current library research and development, particularly concerning applications of automation to library operations.

F. International Relations

237. Some of the federal government's international cultural and developmental assistance activities have important educational dimensions even though they do not directly touch upon the organization and administration of education within Canada.

238. Cultural Activities. Canada is a member of a number of international organizations whose activities are related to educational matters. For example, Canada is an active participant in Commonwealth Education Conferences as well as in the educational activities of international francophone institutions. Canada also participates in the biennial International Conference on Education, which is convened jointly by UNESCO and the International Bureau of Education, as well as in the various educational activities of UNESCO and the OECD (such as its Educational Committee and its Centre for Research and Innovation in Education).

239. Bilaterally, Canada also carries out cultural exchange programs with many countries. These programs have an educational dimension in that they frequently provide for exchanges of professors, students, and researchers as well as for artistic exchanges of all kinds. Canadian embassies abroad also carry out cultural and information programs which involve the production and distribution of publications, audio-visual material and exhibition material. Efforts are also made to increase contacts between the Department of External Affairs and members of Canada's academic community as well as organizations interested in the study of international relations and the formulation of Canadian foreign policy.

240. Developmental Assistance. Canada's international developmental assistance activities also have an important educational dimension. The Canadian International Development Agency, in close collaboration with provincial authorities, provides advisors and educators for developing countries as well as training in Canada for students from these countries. The federal government also contributes to the financing

of non-governmental organizations which work in the educational field in developing countries. For example, the Canadian University Service Overseas program provides developing countries with teachers, doctors, nurses, engineers and other specialists who normally spend two years in a given country.

241. Mention should also be made of a new initiative in international development work, the International Development Research Centre, which was approved by Parliament in 1970. First proposed in 1967 by the Rt. Hon. L.B. Pearson, the Centre focuses advanced scientific and technological knowledge on the difficulties of the developing countries by sponsoring or supporting research designed to bridge the growing gap between science and technology.

242. Federal Policy. Although it has full responsibility for the conduct of Canada's international relations, the federal government seeks to carry out these relations in a manner that both projects Canada's distinct bilingual character internationally, and satisfies the international interests of all provinces. Thus, in recent years, in addition to developing its participation in more traditional areas such as Commonwealth activities, the government has sought to establish closer ties with other French-speaking countries as well as to play a more active role in developing multilateral cooperation among francophone nations. Canada is a founding member of the Agence de coopér tion culturelle et technique and an active participant in the conference of francophone Ministers of Education and of Youth and Sports.

243. Insofar as provincial interests are concerned, the federal government fully recognizes that the provinces are legitimately concerned with the conduct of Canada's foreign relations, whether by reason of their domestic legislative responsibilities or because of their interest in matters which have taken on an international character in the modern world. This is particularly true with respect to education, which is a matter of provincial domestic jurisdiction. Thus in organizing Canada's participation in international organizations and conferences dealing with educational matters, the Department of External Affairs seeks to ensure that Canadian delegations reflect Canada's federal, as well as cultural characteristics. The Council of Ministers of Education, Canada, has played an increasingly important role in this respect, and in recent years provincial representation on Canadian delegations to international education conferences has been strengthened, while provincial representatives have frequently been designated chairmen of these delegations. In preparing these conferences, the Department of External Affairs also works closely with other federal departments and agencies - notably the Secretary of State Department - as well as with governmental and non-governmental organizations that may also be interested in some aspects of these conferences.

244. The Department of External Affairs also consults with interested federal departments, provincial governments, and concerned organizations with respect to the various cultural exchanges that take place with other countries when these touch upon educational matters. Similarly, provincial authorities are consulted concerning the development of programs which could have a substantial impact on the personnel requirements of the provinces. For example, recruitment of teaching personnel is carried out in consultation and collaboration with interested provinces.

CHAPTER III

POLICIES FOR THE SEVENTIES: ACCENT ON COORDINATION

A. Statistical Overview of Federal Expenditures on Education

245. As documented throughout this review, the participation of the Government of Canada in the field of education entails a substantial financial commitment. Table 8 provides a statistical overview of the types and amounts of expenditures committed to education by the federal government in 1972-73.

246. As indicated in the table, the federal government spent a total of nearly $2 billion for the programs covered by the overview. The greater part of this amount was disbursed in the form of grants and contributions to governments, educational institutions, faculty members, and students.

247. About one-half of the total expenditures took the form of fiscal transfers to provincial governments for post-secondary education. Other grants and contributions to governments brought the total amount remitted to governments over the $1.2 billion mark.

248. The second largest category of federal funding ($310.6 million) represented expenditures on occupational training of adults.

249. Research funding was provided mainly in the form of research grants and research fellowships ($121.3 million) and to a lesser extent in the form of contracts ($7.5 million).

250. Apart from loans, the federal government provided close to $270 million in direct aid to students under programs administered by the Departments of Indian and Northern Affairs, National Defence, and Manpower and Immigration; and in the form of allowances, bursaries, scholarships and fellowships awarded by the granting Councils and a number of federal departments.

B. Education in the Context of Science Policy: Analytical Approaches

1. The Evolution of Science Policy Mechanisms

251. Canada, as have most Western nations, has become increasingly conscious of the need for establishing a rational basis for decision-making at the national level in respect of the encouragement and use of scientific and technological activities in pursuit of national goals. The potential value of science to society was clearly recognized in the establishment, in 1916, of a Committee of the Privy Council on Scientific and Industrial Research, and, at the same time, an Honorary Advisory Council for Scientific and Industrial Research which was broadly representative of both governmental and private scientific interests. This Advisory Council has since come to be known as the National Research Council. While it was evolving along lines that led both to the

TABLE 8

STATISTICAL OVERVIEW OF FEDERAL EXPENDITURES ON EDUCATION, 1972-73

Program	Grants and Contributions to: Governments	Institutions[2]	Faculty	Students	Other Expenditures	Total[1]
	(thousands of dollars)					
Department of Indian & Northern Affairs	34,082.0	-	-	7,980.0[3]	63,173.0	105,235.0
Department of National Defence	8,116.0	-	-	11,677.0	42,986.0	62,779.0
Federal Prison Service	77.9	-	-	-	338.1	416.0
Occupational Training of Adults	-	-	-	138,439.0[4]	172,172.3	310,611.3
Fiscal Transfers for Post-Secondary Education	987,030.0	-	-	-	-	987,030.0
Citizenship and Language Instruction Agreements	775.7	-	-	-	-	775.7
Textbook Agreement	120.6	-	-	-	-	120.6
Teaching of Official Languages	62,883.2	-	-	-	-	62,883.2
Department of Regional Economic Expansion[5]	11,689.0	1,624.0	-	-	-	13,313.0
Research Grants and Fellowships	-	13,430.2	107,772.0	79.8	-	121,302.0
Contracts	-	5,069.0	2,435.7	-	-	7,504.7
Excise Tax Exemption	-	23,000.0	-	-	-	23,000.0
Canada Student Loans Plan[6]	10,623.0	-	-	-	23,400.0	34,023.0
Allowances, Bursaries, Scholarships and Fellowships	-	648.3	-	27,742.0	-	28,390.3
Income Tax Reductions	-	-	-	84,000.0	-	84,000.0
Other Programs[7]	95,805.7	-	-	-	3,139.0	98,944.7
TOTAL	1,211,203.1	43,791.5	110,207.7	269,917.8	305,208.4	1,940,328.5

1 - Excludes federal expenditures on educational technology; information services; training of foreign students administered by CIDA; and Canadian participation at international conferences on education matters. In addition, the total excludes equalization of local school taxes. This program went into effect in 1973-74, and amounted to $160 million in that year. Also excluded are all types of loans.

2 - Excludes expenditures on federally operated institutions.

3 - Allowances to students or parents.

4 - Allowances to students.

5 - Includes expenditures on FRED (Fund for Regional and Economic Development): $446,000 for capital expenditures in P.E.I. and N.B., and $316,000 for adult education in P.E.I.

6 - Excludes value of loans under the Plan. Total amount of new loans under CSLP was $100 million in 1972-73. Québec, which has its own plan, received alternative payments ($10.6 million) for 1972-73. Operating costs of the Plan, shown as "Other Expenditures" include: interest payments; loss claims; death claims and collection fees.

7 - "Other Programs" include programs of the Department of Health and Welfare for health personnel training and health training facilities ($95.8 million). These are not covered in Chapter II.

Source: Survey carried out by the Education Support Branch, Department of the Secretary of State.

establishment of its own laboratories and to the inception of programs of support to build up both industrial and university research capability and increase the supply of research scientists trained in the natural sciences in Canada, other federal government departments and agencies were also founding and expanding their own research facilities and, in a limited way, inaugurating a variety of programs for supporting or procuring university research and for ensuring a supply of research-trained scientists in fields related to their own missions.

252. The National Research Council, while enjoying conspicuous success in its chosen endeavours, apparently was not able to satisfy completely the government's need for advice on scientific matters, for in 1949 an Advisory Panel for Scientific Policy was set up to advise the Privy Council Committee on the formulation and conduct of government scientific policies. It consisted of the deputy heads of thirteen government departments and agencies which operated significant science-based programs as well as the Clerk of the Privy Council and the Secretary of the Treasury Board.

253. The Privy Council Committee, by 1960, consisted of ten Ministers whose duties included the supervision and coordination of government research, the formulation of broad policies for government research and development expenditures, and consideration of major developments or new projects involving important changes in policy or expenditures.

2. The Glassco Commission

254. In 1960, seeking to improve the efficiency and effectiveness of its burgeoning operations, the federal government set up a Royal Commission on Government Organization under the chairmanship of J. Grant Glassco. The Commissioners were instructed to make recommendations with respect to administrative and financial matters, decentralizing, re-allocating or re-grouping units to achieve efficiency and economy and eliminate duplication. In the course of their investigations they found, among other things, that the advisory and policy-making mechanisms for science described above were virtually inoperative as suitable instruments for informing and assisting the Prime Minister and his Cabinet who must control major scientific policy mechanisms. The Privy Council Committee had met infrequently - between 1950 and 1958 not at all; the Advisory Panel had met on the average of about once a year; and the National Research Council membership had shifted so as to include mostly academic and government scientists and only one each from industry, labour and a provincial research council. Proposals usually reached Cabinet on the recommendation of individual Ministers, via the Treasury Board, sometimes with additional support from an interdepartmental committee or extra-governmental groups. The Treasury Board had thus provided the principal review, with informal participation of government scientists.

255. The Commissioners therefore proposed, in their report of 1963:*

*The Royal Commission on Government Organization, Report, Vol. 4, Ottawa, 1963, pp. 221 - 224.

i) In order to remove the diffuseness of responsibility for science policy, that responsibility for scientific policy guidance be vested in a single Minister without departmental responsibility. They suggested that the responsible Minister be the President of the Treasury Board, an office which they also proposed.

ii) In order to overcome the lack of adequate policy infrastructure, that a secretariat be provided to assemble and interpret both domestic and foreign information not only of scientific but of economic and social significance, to maintain a general and continuing scrutiny of all government scientific programs, and, in conjunction with the Department of External Affairs and the National Research Council, be responsible for arrangements necessary to further the international relations of Canadian science. The secretariat should not have operational responsibility or authority over government scientific establishments.

iii) In order to overcome the problem of distinguishing between "high policy" relating to national aspirations and administrative policy, that an advisory body be created with broad representation from scientific disciplines, industry, the armed services and the community at large, to advise on matters of high policy.

256. The Commissioners suggested that the secretariat be called the Central Scientific Bureau and be headed by a Scientific Secretary of deputy-ministerial status. He should also serve as secretary to the advisory body for which they suggested the name of the National Scientific Advisory Council. They advised that, "in the future planning of research, account must be taken of other research activities in Canada, particularly expanding research programs of provincially financed bodies" (including universities). They noted that during the then immediately past period of rapid expansion of government scientific programs, industry had had no effective spokesman, and those most responsible for influencing decisions had had neither industrial experience nor close knowledge of the operational problems of industrial research. Therefore, this council should include government scientists but both it and any committee it created should be presided over and recruit at least half its membership from outside the government service. The council should make annual reviews and consider all proposed changes in scope or emphasis and review proposed expenditures before submission to the Treasury Board.

257. The Commissioners identified one specific area which they believed should be coordinated by the Central Scientific Bureau and for which it should define priorities. This was the area of northern research, portions of which at that time were being conducted by some ten federal departments or agencies. While there was a department (Northern Affairs and National Resources) with ostensible responsibility in this area, the Commissioners felt it was too much at odds with its other major concerns, that is, the social welfare of native peoples and northern social and economic development. They recommended removal of the responsibility for northern research from this department. Other areas

with similar problems of coordination, such as research on water resources, ice research, and space and aeronautics research, they felt could be adequately coordinated by a department already having a major responsibility in the given area.

258. The purpose of these recommended changes was not primarily to rationalize university research support, but, rather, to rationalize government scientific activities. Nevertheless, they carried important implications for education, especially graduate education.

259. The Glassco Report was a watershed in the evolution of science policy mechanisms. Many of the recommendations were implemented. The Cabinet Office of President of the Treasury Board was established, and so was a body analogous to the Central Research Bureau recommended by the Commission. However, the Science Secretariat, as this new body was called, was established in 1964 in the Privy Council Office rather than under the President of the Treasury Board. This was because it was believed that the Minister responsible for overall financial control would find it difficult to be simultaneously responsible for an area of such rapidly expanding activity.

260. A body analogous to the recommended National Scientific Advisory Committee was established in 1966, and named the Science Council of Canada. This body was composed of 25 members, with approximately equal numbers drawn from universities, industry and government, plus one associate member each from the Departments of Finance and Industry, the Economic Council of Canada and the Science Secretariat.

261. The Science Secretariat, at the time of the establishment of the Science Council, had already begun to fulfill its functions of providing information and advice to the Cabinet on scientific matters when these were requested; participating in the determination of government priorities to the extent that scientific and technological input was relevant; coordinating or participating in interdepartmental discussions of scientific and technological studies; organizing or conducting special studies; and providing the Department of External Affairs with advice on the selection of science counsellors for postings abroad. In executing these functions, it was often dealing with confidential material. The Science Council was given a broader mandate which included submitting recommendations to the Prime Minister on the adequacy of Canadian scientific and technical research and development; on the effective development and utilization of scientific and technical manpower in Canada; on long-term planning for scientific and technical research and development in Canada; and on the priorities that should be assigned to specific areas of scientific and technological research. It was also expected to submit recommendations on the responsibilities of federal departments and agencies in relation to those of universities, private companies and other organizations in furthering Canadian science and technology; on the best means of developing and maintaining cooperation and the exchange of information between the council and other public or private organizations concerned with the scientific, technical, economic or social aspects of life in Canada; on the factors involved in Canadian participation in international scientific and technical affairs; and to provide the statistical or other information on scientific and technical research and

development that is needed to provide a proper basis for formulation of government policy in relation to science and technology in Canada.

262. The Science Secretariat was given the task of providing the Secretariat for the Science Council when it was first formed. In spite of a certain benefit flowing from the interjection into government deliberations of ideas from the "outside" which was facilitated by this arrangement, it soon became apparent that the protection of confidentiality posed problems which could be overcome only by separating the Science Council entirely from the central office of government. This was done in 1968, and the Science Secretariat continued with the tasks described above, after having published several studies dealing with scientific manpower, resource development and some major research programs.

263. The Science Council continues the practice which it adopted very early of publishing, in addition to its annual report, background studies, special studies and reports on topics selected by the council. The content of background and special studies is the responsibility of the authors, who may be consultants commissioned for the task or members of the Science Council's staff. Reports reflect the views of the council.

264. In 1969 the Science Council of Canada Act was amended so as "to make a clear distinction between the roles of the Science Council of Canada on the one hand, which represents the Canadian scientific community and which advises the government on medium- and long-term fundamental issues in science, and the Science Secretariat, on the other, which advises the government on a daily basis on all matters relating to science."*

265. By January 1971, the machinery for national science policy formulation consisted of: the Privy Council Committee on Scientific and Industrial Research composed of Cabinet Ministers and which in 1969 had been made a standing committee of Cabinet; the chairman of this Committee who was also President of the Treasury Board, and the designated minister through whom the National Research Council reported; the Chief Science Advisor; the Science Secretariat of the Privy Council Office reporting to the Secretary of the Cabinet, the Science Council of Canada; the Advisory Panel on Scientific Policy which had not met in recent years; scores of interdepartmental committees; numerous federal-provincial councils and committees, both at the ministerial and official levels; the granting councils (the National Research Council for natural sciences and engineering; the Medical Research Council; and the Canada Council for social sciences and humanities); and a variety of operating agencies, Crown corporations and national laboratories.

266. The Chief Science Advisor was able to say at that time that "the Privy Council Committee on Scientific and Industrial Research made more useful decisions in the past ten months than it had made in the previous ten years. Since the separation of Science Secretariat of the Privy Council Office from that of the Science Council, it has been possible to uncork a bottleneck and present to the Cabinet a backlog of policy

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*Press Release, Office of the Prime Minister, May 16, 1969.

proposals. Blocks of related proposals, originating in many government departments and agencies, as well as the Science Council, have been considered in an orderly fashion."* He also noted that the policies of the granting councils have an important effect in Canada, but that while the councils were generally left to determine their own policies and roles, there was an increasing tendency for the government to regulate activities through control of the budget and council memberships.

3. The Macdonald Report

267. In 1968 a special study of federal government support of research in Canadian universities was commissioned jointly by the Science Council of Canada and the Canada Council. The resulting report is usually referred to as the Macdonald Report.**

268. In contrast to the report of the Glassco Commission, which had detailed the size and scope of the then current scientific activities of the federal government departments and agencies and contrasted them with the importance of the relevant sectors of the Canadian economy (e.g., agriculture, mining, shipping, industry, etc.), the Macdonald Report focussed on those government activities which were directly related to research and graduate training in the universities. It noted the phenomenal growth in scientific activity both within the federal establishment and in Canadian universities during the preceding decade, still without the overall planning and guidance at the federal level which a coordinated, national science policy would have provided. It expressed the view that the universities should be regarded as a national asset of value irrespective of what direct benefits the federal government might reap as a result of obtaining research services from the universities or by employing university-trained scientists in its own laboratories.

269. From this perspective, the report advised that the role of the federal government should be to set major goals and order priorities, and then decide what proportion of the effort required to reach each goal should be allocated to research in relevant areas. It should ensure that departments and agencies use "best practices" in assessing projects, participate in strategic decisions concerning important programs, and fill in research needs wherever lacunae were seen from the national vantage point.

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* "The Formulation of National Science Policy in Canada," by Robert J. Uffen, Chief Science Advisor. Paper contributed to a meeting of scientists hosted by the Royal Society, London, January 26-27, 1971.

**Science Council of Canada and the Canada Council, Special Study Number 7, "The Role of the Federal Government in Support of Research in Canadian Universities," by J.B. Macdonald, L.P. Dugal, J.S. Dupré, J.B. Marshall, J.G. Parr, E. Sirluck and E. Vogt, Ottawa, 1969. (The Macdonald Report)

270. In regarding the universities as the only valid source of decisions for defining the thrust of university research, the federal government (as well as provincial governments) were effectively assigned a passive, responsive role. This position, combined with the premise that only research and researchers of high merit should be supported in universities, implied that government support would flow mainly in response to proposals submitted by university researchers, and to those universities which already had succeeded in building up their research competence. The report noted that only 10 of the 50 or so universities which had graduate science programs already were capturing over 80 per cent of all federal university research support.

271. It should be noted that one of the eight members of the study group submitted a minority report in which he took exception to the concept, described above, of the desirable relations between universities and the federal government, because it failed to recognize provincial jurisdiction over education and provincial priorities for universities and university research. He also objected that the heavy emphasis on "high merit" failed to provide sufficient scope for federal support to perform the function of stimulating the development of research capability where it did not exist in appropriate measure - a function which it had obviously performed in the past and which he felt it should continue to do, especially in francophone universities.

272. It should also be noted that the study group had observed and decried the disparity in the flow of federal money to research in universities, whereby only 15 per cent went to the social sciences and 85 per cent went to the natural sciences. The Macdonald group described the primary role of universities as that of performing basic research to create knowledge; of using new knowledge to criticize today's knowledge and of using research to foster the spirit of enquiry - both deemed essential to good university teaching; of developing manpower to conduct research in universities, industry and governments. They further described a desirable secondary role as that of performing research essential to Canadian goals because of the urgency of issues, the objectivity of university researchers, the wealth of expertise to be found in universities and the fact that often no other researchers were able to do the work. Still, the criterion of government in approaching universities should be the welfare of the universities, and the relationship one of partnership.

273. The Macdonald group assessed the relationship between mission-oriented departments and universities, and concluded that universities should perhaps adopt a more positive attitude toward performing mission-oriented research. Having also concluded that the federal government should only respond to initiatives from university researchers, it followed that mission-oriented departments and agencies would have to acquire relevant research in much the same manner as the granting Councils. Furthermore, implementation of the recommendation that all "grants" be replaced by "research agreements" paying full overhead would further blur the distinction between these two major types of federal agencies.

274. In examining the federal structure for supporting university research, the Macdonald group saw a need for: establishing a committee

to coordinate the funding of interdisciplinary research, which should be called the Inter-Council Coordinating Committee and be composed of the heads of the three Councils; establishing a small advisory body, which should be called the Canadian University Research Advisory Committee, composed of persons closely acquainted with university operations, to supplement Treasury Board analyses and advise on allocations of funds for university research support; changing the composition and terms of reference of the Science Council of Canada to include persons representative of the social sciences and humanities and orienting it toward the provision of long-term policy advice; and encouraging each mission-oriented agency to establish one or more - depending on the number of different areas represented in its programs - advisory committees with university representation to evaluate the balance between its intramural and extramural programs, advise the agency of on-going research of relevance to its mission and to advise on the disbursement of funds for the support of research relevant to its mission.

275. After examining the responsibilities and operations of the three federal granting Councils, the study group concluded that the social sciences and humanities portion of the Canada Council should be set up as an independent funding agency, that the university research support programs of the National Research Council also should be set up as a funding agency separate from involvement with the laboratories, and that the terms of reference of the Medical Research Council should be enlarged to include all of the health sciences.

276. It was the view of this study group that manpower planning should not be a concern in the planning of university research support by federal agencies, since "the marketplace offers an adequate governor to prevent serious surfeit and encourage students to move toward fields of opportunity if its trends are made explicit." It would be sufficient to make the required information widely available and rely on counselling of students, student canniness, and university responsiveness to maintain an appropriate balance. The councils should be aware of support through other routes and act as a "balance wheel."

4. OECD Review of National Science Policy

277. While the Macdonald study was in progress, the OECD Secretariat was conducting an enquiry into Canadian science policy, the tenth in a series of reviews of science policies of member countries. The OECD report was the first general summary of the Canadian science effort to be published.*

278. The orientation and tone of this review are in marked contrast to those of the Macdonald Report, especially in regard to the role of the federal government in relation to university research. Placing Canada's scientific activities in an international framework, the review made clear what had been evident to those who had founded the NRC,

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*OECD, "Review of National Science Policy: Canada," Paris, 1969.

and those who had guided its evolution, as well as to those who had been struggling for years to evolve government programs to overcome the problems: Canadian industrial research and development has lagged for decades behind nearly every other country with a comparable state of industrial development, standard of living and general level of education. It was clear to the reviewers that the initial and continuing impetus for federal involvement in the development of university research capability and research training capacity was to provide Canada with the scientific and technical manpower needed to exploit the natural resources of the country and to exploit the potential of scientific discoveries for the economic and social benefit of Canadian society.

279. During the phase when Canada had a negligible capacity for producing indigenously the needed manpower, and a negligible capacity for performing the fundamental research needed to supply the knowledge or performing the applied research needed to utilize the knowledge for the solution of problems arising in areas within federal responsibility, it was rational and necessary that the federal government establish its own laboratories for these purposes and initiate programs to build up the research and training capacity of the universities. However, the reviewers, after taking stock of the situation, felt that the time had come to use the federal spending power for scientific and technological research to better advantage.

280. To begin with, it was obvious to them that Canadian universities had reached a capacity and a general level of competence in research that they could henceforth provide a continuing supply of scientific and technical manpower adequate for Canadian needs. Therefore, it seemed that the need for expanding this capacity no longer existed. Indeed, forecasts presented by the National Research Council to the hearings of the Senate Special Committee for Science Policy, suggested that continuation of the then current trends would soon produce an over-supply of scientists and engineers.*

281. Furthermore, the quantity and quality of Canadian university research seemed to the reviewers to be adequate to take care of the need, related to the teaching function of universities, for maintaining the general level of scientific and technical knowledge in Canada abreast of current worldwide developments. Therefore it seemed to them that there was no longer the same need for government laboratories to perform fundamental research in areas related to the missions of the various departments. Indeed, the examiners proposed that the fundamental research laboratories of the National Research Council might usefully be transferred to the institutional management of nearby universities in order to increase their accessibility as teaching facilities.

282. The still relatively low participation of Canadian industry in applied research suggested, further, that an active policy of gradually

*The Senate of Canada, Proceedings of the Special Committee on Science Policy; First Session, Twenty-eighth Parliament, October 23, 1968.

shifting the performance of such research from government laboratories to those of the private sector should be implemented, and that the benefits of this policy could be magnified by strengthening the interface between universities and the private research and development sector. Such innovative mechanisms as the industrial research institutes which had recently been set up with federal help on several campuses in Canada, or the creation of industrial parks where federal or provincial laboratories were placed side by side with private laboratories, were hailed as potentially salutory initiatives.

283. The various programs of the Department of Industry, Trade and Commerce and of the National Research Council that aimed at strengthening and increasing industrial research and development capability were critically examined. The reviewers judged the concepts to be good, but considered that the relatively vulnerable position of the Canadian economy in relation to markets for products developed and produced in Canada was such that the government had to shoulder a greater part of the risk in such ventures than its current incentive programs for industrial research and development were providing. The parameters of the Department of Industry's incentive program, for example, were such that its benefits would flow mainly to already well-established research and development units.

284. The reviewers' assessment of the tenor of thought in many circles in Canada, including university circles, was that the time had passed when the performance of scientific research could be viewed as a good in itself. The idea that science and technology are means for achieving economic and social benefits for everyone had won wide acceptance. This implied, as it did to the Science Council,* that the major task of the federal government had to be the definition of national priorities for research, and the design of major research programs in which both industries and universities could play their appropriate roles. The basis for designing these major programs should include consideration of Canadian natural, human and material resources, geographic and constitutional factors, as well as social benefit and economic potentials. They should not simply consider ready-made markets in North America, but rather look toward markets in other countries which share some feature of the Canadian situation (for example, communications problems). These considerations led the reviewers to concur with the conclusion which had already been reached by other observers that Canadian universities should extend the already observable trend toward institutional rationalization to a system-wide rationalization in which universities would not attempt to excel in all fields of research but, rather, concentrate their efforts in a few fields chosen in relation to regional needs and resources, the specialization of other institutions, and the overall national programs.

285. In evaluating the federal structure for supporting university research, the reviewers consulted with many academics across Canada.

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*Science Council of Canada, Report #4 "Towards a National Science Policy" Ottawa, 1968.

Consideration of the views expressed and recent trends toward greater use of multidisciplinary teams to tackle research problems led them to suggest that it would be necessary to reduce the academic compartmentalization of knowledge, which appeared to them to be reinforced by the federal structure in which the major responsibility for consideration of research proposals was distributed among three different bodies (the National Research Council, the Medical Research Council and the Canada Council), each of which concerned itself with a certain set of disciplines. Multidisciplinary research was, therefore, seldom considered in the light of its concerted potential. This problem was confounded by the practice of at least the National Research Council to consider mainly the professional reputation of the researcher. This led the OECD examiners to suggest that the balanced growth of research in Canadian universities would best be served by the establishment of a single comprehensive grants agency. They suggested retaining the historic name of the National Research Council. It would become the centre for determining the country's fundamental research strategy, designed to support the practical requirements of mission-oriented departments and industry and provide educational possibilities in new fields at the highest level. They suggested that mechanisms such as federal-provincial conferences or mechanisms similar to those currently in use to coordinate resources policies could be used to create a national strategy for education, or at least harmonize provincial and federal strategies. This would encourage innovation throughout the educational system, make new knowledge and the capacity to assimilate new technology generally available, develop a well-balanced national research effort, and provide the range of skills which Canada will require.

286. Furthermore, in order that the emphasis in research activity reflect changes in the economic structure of the country, as well as the ambitions of the nation for future changes, the technological potential of Canadian industry should be strengthened by all means. In particular, Canada should create a highly competitive environment favourable to the process of innovation. Establishing a national report on the activities of the various laboratories would give an overall view of the results of Canadian research essential to formulating science policy. But science policy would have to be linked to industrial strategy, and these cannot be readily associated without systematic use of technological forecasting methods. A considerable effort would be needed in the field of industrial management, and effective liaison would have to be established between the various institutions engaged in research.

287. After evaluating the central structure for science policy formulation, the examiners concluded that, even though the Science Secretariat was not under the President of the Treasury Board, the fact that the President of the Treasury Board was also Chairman of the Privy Council Committee on Scientific and Industrial Research, as well as the designated Minister through whom the National Research Council reported, created conflict. They therefore recommended the creation of a Cabinet position of Minister for Science, but without an operating department, and suggested that this minister be responsible for a Cabinet Committee on Science Policy.

288. The conclusion of the OECD analysts was that Canadians clearly place university research at the centre of their aspirations for the social and economic development of Canada.

5. The Senate Special Committee on Science Policy

289. In 1967 the Senate of Canada established a Special Committee on Science Policy, Chaired by Sen. Maurice Lamontagne. The Committee begun its hearings as the authors of the Macdonald Report and the OECD Review of Canadian Science Policy were gathering material and writing their reports. The Senate Committee reported in three volumes, which were released in 1970, 1972 and 1973. The aim of the first volume, subtitled "A Critical Review: Past and Present," was described as follows:

> "This assessment has three perspectives. The first is historical; it describes how science policy developed in Canada and purposely emphasizes the weaknesses which have appeared at different periods since 1916. The second is international; it attempts to perceive how the Canadian science effort and its main components compare with those of other OECD countries, so as to expose weaknesses in Canadian participation in the international scientific and technological race. The third perspective is current and national; it summarizes the critical views on present conditions and the main suggestions presented to the Committee by Canadian representatives of the public and private sectors."*

This volume received widespread attention. The Senators received hundreds of comments from individuals and groups, most of which were favourable. There was some criticism, largely from the scientific community.

290. The main themes of the first volume centred around the founding and evolution of the National Research Council; the influence of the value-system of what the Senators referred to as "the Republic of Science" in the orientation of government research policies and programs toward basic research to the neglect of social and industrial research and development; and the need for developing an overall comprehensive science policy which would complement the diffuse and decentralized approach that had been followed in Canada, and harness science and technology in the coordinated fashion to the task of meeting collective social needs, as opposed to the earlier narrower orientation toward military and economic objectives. The Senators stressed the R&D gaps in such areas as education, urban living, poverty, health, pollution, the negative impact of technology, leisure, and human maladjustment to a rapidly and constantly changing technological and social environment.

291. The second volume, subtitled "Targets and Strategies for the Seventies," appearing two years later, dealt "only with the general background and framework of an overall science policy and with targets and strategies for basic research and industrial research, development and innovation." It covered essentially what was termed "first generation" science policy, and offered recommendations for organizational changes

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*The Senate Special Committee on Science Policy, "A Science Policy for Canada; Vol. 1; A Critical Review: Past and Present." Ottawa, 1970, p. 14.

to correct imperfections in the intensity and orientation of the Canadian effort devoted to science, industrial technology and innovation.*

292. Among the problems which the Senators identified was that of an apparently worldwide phenomenon: the turning away of many able young people from scientific careers in what appeared a reaction to the negative effects of technology on social life. They concluded that "we must learn to design and manage the public institutions associated with science and technology more effectively; we must overcome the time lags and inertia that characterize almost all institutions, these factors that conspire to deflect institutional concern from the problems of today and tomorrow to problems that are already embalmed by history."** This called for changing the direction of innovation so as to improve the quality of life, and this must be done soon before planetary problems have grown beyond control. An overall coherent science policy could make a vital contribution toward meeting challenge.

293. "Before the Canadian government can define the content of its science policy in detail, it must first develop targets and broad strategies for the national R&D effort, revise its methods of intervention, and drastically reorganize its agencies and administrative mechanisms."*** The Senators believed that the targets and strategies must be based on a definition of national goals which would have to be ordered as national priorities. The requirements and contributions of science and technology can best be seen and the tasks of science policy most easily identified within the framework of the three major categories of purposes of society, which are: cultural enrichment, including national prestige; economic growth; and public welfare. The Senators expressed the view that cultural enrichment must increasingly become an aim of Canadian society; and the encouragement of basic science as a sector of high culture and the enrichment of public culture by science are important elements. The basic purpose of mission-oriented research and development, wherever they are done, is innovation, and the amount of innovation which results must be the criterion for measuring the value of mission-oriented programs. The Senators included both technological innovation and social innovation, related both to the marketplace and to public welfare, in this view.

294. The Senators stated their belief that: "Science policy must also be concerned with the maintenance of a balanced supply of scientific and technological manpower, including managers and administrators competent to orient the national R&D effort and use its results for the cultural, economic and social advantage of the nation." In contrast to views of the Macdonald study group, the Senators stated their conviction that "it is not enough to rely on the inclinations of students, who, if left to themselves might overcrowd some professions and neglect others."****

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* The Senate Special Committee on Science Policy, "A Science Policy for Canada; Vol. 2; Targets and Strategies for the Seventies." Ottawa, 1972, p. 333.

** Ibid, p. 365.

*** Ibid, p. 373.

****Ibid, pp. 376-377.

The Senators expressed their view that imbalances could be corrected through scholarships and fellowship programs, and that future needs of the R&D effort should determine these programs as well as retraining programs.

295. To train scientists and engineers, an adequate teaching staff is required, but the research which it is claimed must be done to maintain teaching competence should reflect the whole spectrum of the national R&D effort if manpower requirements are to be met in terms of quantity and quality. This means that university research cannot be confined to basic research but must meet the need to produce applied scientists, engineers, and technologists who can produce more inventions and transform them into successful innovations. This would seem to require new kinds of university education.

296. Mentioned among other aspects with which government science policy must be concerned were scientific services, including financial assistance for the small innovator; a national information network to ensure rapid diffusion of new scientific and technological developments; the development of procedures for assessing not only negative aspects of innovations but the positive aspects of the output of all R&D activities, including fundamental research; and the provision, through such means as policies for patents, tariffs, monopoly controls, taxation, availability of risk capital, and foreign ownership, of a general political climate favourable to efficient and effective execution of research, development and innovation activities.

297. The structural and organizational changes which the Senate Committee recommended, and which bear on education policy, were related to the targets which the Senators described for the '70s. These included a general target for gross expenditures on research and development, which should increase significantly during the decade; the provision of a comprehensive information system concerning Canadian research and development activities, and the establishment of a central department with a detached overview of the total picture and enough authority to solve conflicts. This central agency could act to reduce overlap in programs, and, on the basis of reliable data and detailed evaluation, allocate resources to specific performance sectors. While the Ministry of State for Science and Technology had already been established (see next section), the Senators recommended that it should be given additional authority to fulfill the functions just described.

298. The Committee believed that teaching (including the preparation of teachers and research on the existing stock of knowledge) and basic research (including the trial period of young basic researchers) should be conceived as two separate and distinct functions, to be supported according to different criteria and by different institutions. Budgets for the former, being integral parts of the educational system, should be the responsibility of provincial governments in cooperation with universities. The Committee noted that, under current arrangements, the federal government would finance half these expenditures. The Senators believed that the Canadian government should assume the financial responsibility for basic research in universities and other

centres of excellence in the area, because basic research is an international obligation. It should cover both direct and indirect costs, thus enabling the pure scientist to concentrate on research and allowing the university to hire someone else to do most of his teaching. The Senators went on to propose extensive changes in the policies and organization of support for basic research in Canada.

299. The Committee took the view that pre-doctoral scholarships should be limited to graduates explicitly intending to pursue a career in basic research and showing the necessary promise of excellence. The support of scientific surveys and applied research should be assigned mainly to mission-oriented agencies. The assistance provided by the federal "foundations," which they proposed should be formed from the existing federal research councils and be dedicated to the support of basic research, would be residual and available only where there were no other specific federal agencies. The main task of these foundations would be the support of extramural activities and the development of a capacity, both individual and institutional, for basic research.

300. In the main, the Senators agreed with the organizational recommendations of the Macdonald group, concurring with them that the granting function in support of the physical sciences of the National Research Council should be separated from the operation of its laboratories, that the Canada Council's responsibility for the support of research in the social sciences and humanities should be entrusted to a new foundation, and that the scope of the Medical Research Council (to be renamed The Life Sciences Foundation) should be enlarged to encompass all life sciences. All of the resulting three foundations would be responsible to a Canadian Research Board, which would report to the Secretary of State. To complete the structure, and to meet Canadian needs for mission-oriented basic research, the Committee recommended the establishment of three major research institutes, for physical, life and social sciences, respectively. These should have a large degree of autonomy, but be under a central umbrella organization, a national research academy, to ensure that multidisciplinary programs were undertaken and unnecessary duplication avoided. They would be responsible for most basic research activities of the Canadian government, for Canadian participation in "big science," and be able to contract out some of their programs or projects to universities. They would fill gaps in basic research, and perform much of their work at the request of government agencies and private firms.

301. Fellowship programs to support post-doctoral development should be determined on a more restricted basis than pre-doctoral scholarship programs. They should be limited to five years, and be associated with a university, or a mission-oriented basic research organization in government or in the private sector. They should require residence in Canada, but be portable within the country. Research grants to highly competent scientists should be, numerically, the most restricted form of personnel support. While excellence should be the criterion of selection of individuals, increasing at each level, social merit should apply to establish priorities among main areas and topics of research, in order to correct imbalances and meet Canadian requirements for research development and scientific and technological manpower. This would

require study of likely requirements in both areas and should be conducted in close collaboration with the proposed foundations and the Department of Manpower and Immigration.

302. Priority in the '70s should be given first to support for social sciences and the humanities, then to life sciences, especially those related to human health.

303. The Committee offered further advice which bears on educational policy. Among those elements which are directly related, the Senators observed that research on the scientific process is key to improving science policy, to developing better management of research and development, and to maximizing the overall scientific and technological output. They therefore urged that Canadian efforts in this field be increased in order to facilitate the industrial and social innovation which they perceived as essential for the future.

304. The report noted, furthermore, that while a balanced supply of scientists and engineers was a basic requirement of an innovative strategy, and while in Canada there was no overall scarcity of qualified scientists and engineers, there was a mismatch in detail between supply and demand. Indeed, except in a few sectors, there was a mounting surplus that could become critical if innovation and research and development in industry were not substantially increased. The Committee attributed much of the problem to an attitude within the universities which extolled the virtues of "pure" science and which had tended to produce manpower trained for and oriented exclusively for employment in the universities, or, as a second choice, government laboratories. At the same time, industry was little interested in the type of graduates which the universities were producing. Adding to this the observation of the OECD reviewers that the countries of Europe, from which Canada had traditionally recruited a large proportion of its scientists and engineers, were becoming concerned about the "brain drain," the Committee concluded that the Minister of State for Science and Technology should see to the preparation of estimates of the number and distribution of qualified scientists and engineers which industry would require in the '70s, and determine the qualifications and training they should have in the light of government decisions regarding targets and strategies for industrial R&D and innovation during the decade.

305. The Senate Committee recognized the need for more permanent steps to bridge the gap between the academic and industrial sectors. While the missions of these two sectors are different and thus make different demands, they are becoming more and more interdependent:

> "Universities could not survive and expand without industry and, as the scientific and technological era develops, industry needs universities."*

306. The Committee recommended a national conference to discuss the issues and devise the best possible institutionalized basis for main-

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*Ibid, p. 521.

taining liaison and cooperation between the universities and industry.

307. In 1973 the Senate Committee issued the third volume of its report.* Even though there had been many criticisms of the proposals contained in the second volume, there had also been many favourable comments. The substance of the proposals described above for the organization of government support for university research was retained, since, on the one hand, to completely integrate the granting function under a single research board as the OECD examiners had proposed would in their view provoke strong opposition from the scientific community, while, on the other hand, to retain the status quo with only minor modifications as the scientific community appeared to favour, would not lead to significant improvement.

308. While in Volume 2 the Committee had recognized the need for closer coordination between the three foundations and had proposed a Canadian Research Board for this purpose, in Volume 3 the Committee allowed that the board should perhaps be modified to include more members than the Chairman and three foundation presidents, that it should provide common administrative services to the foundations and that it should ensure that the priorities of the foundations included support for worthwhile multidisciplinary products. The Senators resisted suggestions that this board be made responsible to the Minister of State for Science and Technology on the principle that this would create a vested interest for the Minister who should be allowed to retain complete objectivity.

309. The Committee rebutted arguments that the creation of a national research academy to oversee mission-oriented basic research performed in three national institutes would isolate basic research from mission-oriented applied research and development, would separate and isolate further the main disciplinary areas of science. The Committee maintained that the division of labour they proposed would be flexible, since departments and agencies could still perform some basic research along with substantial applied research and development. Most of the basic research required by them, however, would be done by the academy on a fee basis, along side of its own projects. This, in turn, would bring basic research closer to the other phases of the innovation process.

310. The Senate Committee emphasized that in the years to come the coordination of federal science policy with the emerging science policies of the provinces would be vital to the building of the innovative society which will be essential in the post-industrial age. They therefore urged that the Minister of State for Science and Technology preside over an Interministerial Federal-Provincial Committee on Science and Technology, which should meet at least annually before the federal estimates for scientific activities are given final approval. Among its responsibilities should be the financing and approval of research priorities for an Institute for Research on Social Policy, which would be a reconstitution of the recently established Institute for Research

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*The Senate Special Committee on Science Policy, "A Science Policy for Canada; Vol. 3: A Government Organization for the Seventies." Ottawa, 1973.

on Public Policy - a body presently devoted to research, public information, and debate of public issues.

C. The Ministry of State for Science and Technology

1. Establishing the Ministry

311. It has already been shown that the successive governments of Canada have been responsive to advice which they received concerning the development and use of science and technology in furthering Canadian social and economic development. Thus the major thrust of the recommendations of the Glassco Commission was followed in the establishment of the Science Secretariat, the Science Council, and the Office of the President of the Treasury Board. Subsequently, the OECD examiners pointed out the inherent conflict in having the President of the Treasury Board acting as the effective Minister for Science. They suggested that there should be a separate Chairman of a Cabinet Committee for Science Policy. The Prime Minister accepted these suggestions, first in making the Privy Council Committee on Scientific and Industrial Research into a standing committee of Cabinet, in June 1969, then in agreeing to the creation of the Office of Science Minister.

312. It was some time, however, before the science ministry took shape. In the meantime, the Chief Science Advisor, a position created in 1969, served as the government's senior advisor on scientific matters. He was Chairman of the Advisory Panel, Secretary of the Privy Council Committee, Director of the Science Secretariat, and an associate member of the Science Council.

313. By January 1971, a Bill was before Parliament which, when passed, would give the government power to establish Ministries of State, conceived as horizontal planning and coordinating agencies for areas which involve the responsibilities of several departments and agencies, or which bear upon their fulfilment of their missions.

> "The general intention of the . . . government in proposing Ministers and Ministries of State was to give the Prime Minister and Cabinet greater flexibility in tackling what were deemed to be major priority problems lacking appropriate policy apparatus. It was felt that the government would be best able to respond to the urgent need for policy development and coordination in a particular field if it could assign full-time responsibility for such a task to a member of the Cabinet and, at the same time, provide this member with an expert staff to assist the carrying out of his or her responsibilities. The Minister and Ministry of State would thus be more formally organized than was the case when a Minister without Portfolio was assigned responsibility for a particular policy problem."*

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*P. Aucoin and R. French, "The Ministry of State for Science and Technology," Canadian Public Administration, Vol. 17, #1, 1974.

314. Subsequent to the passage of the Bill, in June 1971, the establishment of the Ministry of State for Science and Technology (MOSST) was proclaimed, "for the purpose of formulating and developing policies in relation to the activities of the Government of Canada that affect the development and application of science and technology."* The Ministry was officially inaugurated two months later, under the leadership of a Secretary and responsible to the first Canadian Minister of State for Science and Technology. The Science Secretariat was transferred to the control and supervision of the new Minister and became the nucleus for the new Ministry.

315. The Minister of State for Science and Technology was charged with the formulation and development of policies with respect to: the most appropriate means for the Government of Canada to have a beneficial influence on the development and application of science and technology in Canada through measures within its fields of jurisdiction; the coordination of scientific and technological programs and activities with other government policies and programs; and the fostering of cooperative relationships with other government organizations, both domestic and foreign, and with public and private organizations in respect to science and technology. Further, the Minister was charged with assisting departments and agencies of the Government of Canada in formulating and developing advice to the government with regard to: the optimum investment in and application of science and technology in pursuit of national objectives; the organization of scientific activities within the public service of Canada; the allocation of human, financial and material resources to Canadian scientific activities; and the extent and nature of Canadian participation in international scientific activities. To accomplish this, the Minister could undertake such research, analysis and policy studies as would be required to further understanding of the impact of science and technology on society, and he could determine and promote the use of methods to assess the effectiveness of scientific programs and policies. The responsibilities described here have formed the basis for the development of the activities of the Ministry during the succeeding three years of its existence.

2. Concerns of the Ministry Bearing on Education Policy

316. Most scientific activities may be said to have importance to education either directly or indirectly. Therefore, most of the concerns of the Ministry, all of which bear on policies for the development and use of science in relation to national objectives, can be said to be relevant in some way to educational policy. However, there are two which are more directly and obviously related to education policy than are the others. One of these is its concern with problems of supply and demand of highly qualified manpower (HQM).

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*Canada, House of Commons Debates, June 21, 1971.

317. The Science Secretariat had initiated activities in this area during the early part of its existence, and had published reviews of scientific and engineering manpower. At a time when there was much public and private concern about education and employment of HQM, the Secretariat had proposed that the government establish an information base useful for assessing future trends and developments by taking advantage of the up-coming 1971 decennial census to obtain an overview of the occupational distribution of Canadians possessing high educational qualifications, and an overview of their employment histories. To this end, an interdepartmental committee was created, chaired by the Science Secretariat, to determine a procedure. The method selected was to conduct a post-censal survey, based on the sample of Canadians which had responded to the long form of the main census questionnaire and who could thus be classified on the basis of educational attainment.

318. This work was carried over to the new Ministry, which assumed responsibility for the project. A questionnaire was developed and approved by the interdepartmental committee. A special feature of the survey consisted of a request for information concerning employment at different, selected times in the life of the respondent, and was included to provide a means of analyzing historical developments in the HQM sector. Because of the relatively small number of graduates from community colleges and other post-secondary institutions before their recent rapid expansion, such a longitudinal perspective would be meaningful only for university-trained HQM. Further, since the cost of training was especially high at the university level, and since university graduates were experiencing the greatest difficulty in finding suitable employment, the post-censal survey was restricted to a sample of all persons reporting a university degree in 1971. In all, some 130,000 were contacted out of an estimated 450,000 university graduates in Canada at the time of the census. A pilot survey was carried out by Statistics Canada in the fall of 1972 to test field procedures, response rates, and questionnaire format, and, on the basis of the success of the pilot study, funds were sought and secured by the Ministry for the full-scale survey which was conducted by Statistics Canada in the fall of 1973.

319. It is expected that a General Review will be published which will investigate the relationships between education and employment so as to better understand the complex HQM market; provide an analytical basis for forecasting supply and demand and for educational planning with respect to HQM; select, investigate and analyze public policy issues concerning HQM; provide an analysis and discussion of topics that are of general and practical concern regarding HQM; and select and analyze special aspects of the relationships between education, employment and careers. Although the survey data will provide no direct information on skills, the occupational classification which will have been made on the basis of the information supplied by the respondent will allow inference of skill requirements.

320. In carrying out the analyses, other sources of information will be drawn upon to ensure that the study is as thorough as possible, and to identify areas where data gaps still exist. Ways will be pointed

out in which the data from the survey, which will be stored by Statistics Canada and made available, on request, either as a statistical package or as special statistical tables, can be used in further and more detailed analyses. Where possible, some results of studies carried out by other federal departments and provincial agencies using the HQM data will be included in the General Review.

321. Many specific aspects of HQM will be investigated. For example, if the inflow of HQM is varied substantially at different points in time, an attempt will be made to identify the important factors affecting the inflow. Since the market for HQM in Canada seems to be national rather than local, an attempt will be made to isolate factors which affect movements within Canada, such as location and field of study, age, ethnic origin, job opportunities and earnings.

322. The data will also be used to assess the stock of HQM in the light of identified national objectives and priorities. For example, have we a sufficient supply to meet the demand which environmental polution and the energy crisis have created for manpower, to carry out research and develop new management practices in these areas? Or again, in terms of promoting interregional and interpersonal equity in Canada, have past practices helped or hindered the attainment of this goal? A better understanding of the link between education and jobs may also lead to greater cost-effectiveness in the use of resources in education, especially at the graduate training level.

323. The age distribution for different occupations; career mobility patterns for various educational levels and fields, age groups or other classifications; comparison with demographic data for employment sectors; evidence of continuing education and retraining will all be examined for their contribution to our understanding of the complex picture of the place of HQM in Canada, and for their usefulness in developing models to assess the likely effect of policy changes in this area.

324. The second concern of the Ministry which bears on educational policy flows from its concern with the organization and management of all government programs having a significant scientific or technological content. The internal organization of the Ministry has undergone some changes during its short existence, but there has been, almost from the start, a division concerned with policy affecting the federal support of university research. Activity within this division has included the review and evaluation of the organization of federal granting agencies and mechanisms used by all federal agencies in support of university research, as well as mechanisms used by federal departments and agencies to procure from universities research needed in support of their missions. It has included study of training needs of research managers in both universities and the private sector, as well as the study of the relationships between research, education and the labour market of the future. The division maintains an overview of the distributions of graduate students in Canadian universities by fields of study, by level, and by region, as well as of graduate student support and of trends in employment for graduates in various fields. It also receives, analyses and provides commentary on information and submissions received from various segments of the scientific community in respect of university research support.

D. Reorganization of the Granting Councils

325. In two speeches from the Throne in 1974, the Government of Canada stated its intent to reorganize its granting structure for support of university research. The motive behind this reorganization was to give granting Councils more precisely defined objectives in order to promote the contribution of science and technology to Canadian society. Continued creation of new knowledge and maintenance of a nation-wide capability in science and technology would be regarded as essential to the attainment of national objectives. The support of excellence in research would remain the focus of Council activities. However, in addition, the Councils would promote interdisciplinary research and a more equitable distribution of federal grants among disciplines and regions in Canada when practicable.

326. Under the proposed reorganization, the National Research Council (NRC) would no longer be responsible for granting, but would concentrate on the operation of its laboratories. It would also continue other operations including the Industrial Research Assistance program and the Canadian Institute for Scientific and Technical Information (previously known as the National Science Library).

327. Awarding grants for research in the natural sciences and engineering would become the task of a new granting Council which would probably be named the Natural Sciences and Engineering Research Council. The Canada Council would no longer make grants for social sciences and humanities research; this function would go to a new Social Sciences and Humanities Research Council. The third granting body, the Medical Research Council (MRC), would continue to make grants in the field of medicine.

328. Each Council, which would be composed of members selected from the academic community and the public at large, and appointed by the Governor-in-Council, would continue to use the peer assessment mechanism through appropriate committees.

329. It may be worthy of note that the presidents of the present granting Councils had established in 1969 an informal "Tri-Council Coordinating Committee" which, by the fall of 1974, had met forty-one times. The matters discussed are problems of common concern to two or all three Councils. By working out criteria for determining which Council should consider a particular proposal, and setting these out in the form of guidelines, the Councils help an applicant to determine to which Council he should submit his proposal. This has been done for two fields, mathematics and psychology, in which emphasis can vary greatly. The resulting problems experienced in this area in the past have now been eliminated.

330. While differing budget structures and differing clientele has not allowed complete uniformity, the TCCC has functioned to keep stipends for graduate research assistants and scholarships as much in line as possible. The Coordinating Committee has also sponsored comparative studies of various aspects of the student support system in Canada.

E. The Role of the Department of the Secretary of State

331. The Government of Canada has been involved in education activities since the latter part of the 19th century. The federal involvement in this field came about through a sequence of pragmatic responses to historical challenges stemming from the intrinsically national character of the issues at stake.

332. Quite understandably for the times, when the BNA Act was drafted, it was assumed that the Government of Canada would have little association with the educational institutions then developing in the country. However, with the passing of time, the Canadian government did find itself substantially involved with some aspects of educational institutions, particularly through federal support of universities. This federal involvement came about in response to three different concerns.

333. The first of these was the emergence of research and scholarship. An area of activity not envisaged at the time of Confederation, it was only some 60 years ago that research and scholarship began to emerge as a parallel responsibility of Canadian universities. This was a responsibility which carried with it attendant requirements for graduate studies and for national and international commitments. These needs resulted in the creation of federal research support programs.

334. The second concern prompting federal involvement emerged during the late fifties and early sixties. At that time, the sudden expansion of educational expenditures across the country reached crisis proportions. Drawn into assuming some capital costs on behalf of Canadian universities and more particularly in relation to technical and vocational facilities at the secondary level, the Government of Canada also assumed half of all operating costs of the post-secondary sector.

335. Almost simultaneously a third concern called for action. It had become apparent that it was in the interest of all Canadians to involve a national input in education - an input capable of correcting some of the interregional and interpersonal inequities in educational opportunities that would otherwise prevail. This requirement led to the creation of the student aid program and influenced the program of fiscal transfers.

336. Moreover, a number of special programs were instituted by the federal government to fulfill its constitutional responsibilities towards Indian and Inuit groups. Still other special programs were designed in order to meet the needs of specific groups in the population, including members of the armed forces, immigrants, unemployed and underemployed workers. Such federal action was thus primarily designed as a practical response to certain specific areas of need.

337. In 1966 the Secretary of State was assigned the task of advising Cabinet on post-secondary education. An Education Support Branch was established in the Department of the Secretary of State, and within a year it became responsible for the administration of that part of the Federal-Provincial Fiscal Arrangements Act, 1967, which related to post-secondary education.

338. In 1973 the Department of the Secretary of State was designated by Cabinet as the agency within the federal government responsible for coordinated development, formulation, implementation and review of federal policies and programs relating to education. In addition to administering the program of fiscal transfers for post-secondary education, the Department of the Secretary of State is also responsible for: federal policies and programs in support of post-secondary education generally; communication with provincial governments, the academic community, and national organizations, on matters of education; cooperating with the Department of External Affairs in the coordination of Canada's effective participation in international forums on educational questions; and evaluating the effectiveness of federal policies and programs in support of education against national goals.